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The AUTOMOBILE

De Palma Wins Vanderbilt Cup

Elgin Victor Repeats at Milwaukee—Averages 68.97 Miles Per Hour—Hughes, in Mercer, Second at 68.79 Miles an Hour —Tetzlaff, the Favorite, Leads Until Out in Lap 26—Pace Slower Than in 1911

IN the longest Vanderbilt Cup race on record, Ralph De Palma drove Mercedes 22 across the finishing line in front of the swift Mercer entry handled by the skillful Hughes, winning the classic in the comparatively slow time of 260:31, with a margin of 1 1-4 minutes. De Palma's victory, though well deserved and clean cut, was not the feature of the struggle. The meteoric flight of the Fiat under the handling of the dashing Tetzlaff and the bitterly hard luck that overtook the Italian car deserves its share of the limelight. Tetzlaff's mount made the pace from the drop of the flag and steadily increased its lead right up to the minute it succumbed. It made some rounds at the rate of better than 75 miles an hour and had lapped the whole field when the misfortune came. A broken driveshaft on the back stretch tells the story.

While the day was delightful overhead and under foot and the course better than at any time since it was selected, the time made was disappointing. The drivers took as few chances as possible and avoided jamming on the turns. The effect of this care is to be seen in the summary which contains the record of no accident. It did not make for record-breaking, however.

The course of the race was fractionally under 300 miles and is about 9 miles longer than the race of last year, which was won by a Lozier in record-breaking time, averaging 94.07 miles an hour.

It was faster than the Alco's time in 1910 or any of the previous marks established for the classic.

Even if the Fiat had stood up to the end, it is unlikely that the Lozier's time last year would have been equalled.

The race was thirty-eight laps of a course measuring about 7.88 miles around. Five cars completed the full distance and the Lozier entry was running at the end, but had completed only twenty-six laps.

The race of the Mercer was wonderfully good as Hughes was well up with the more powerful Mercedes pair throughout, outspeeding the Wishart car in the final quarter and causing De Palma to open his throttle to keep out from under foot.

The Stutz made a gallant showing, running the steadiest race of the field, reeling off round after round in a little over 7 minutes. The car lacked the supreme power to take the pace, but the remarkable sturdiness displayed attracted an immense amount of interest.

The Wishart and Clark Mercedes cars were in the hunt to the end, ready to come on and win if anything happened to the leaders. This did not eventuate as it happened,

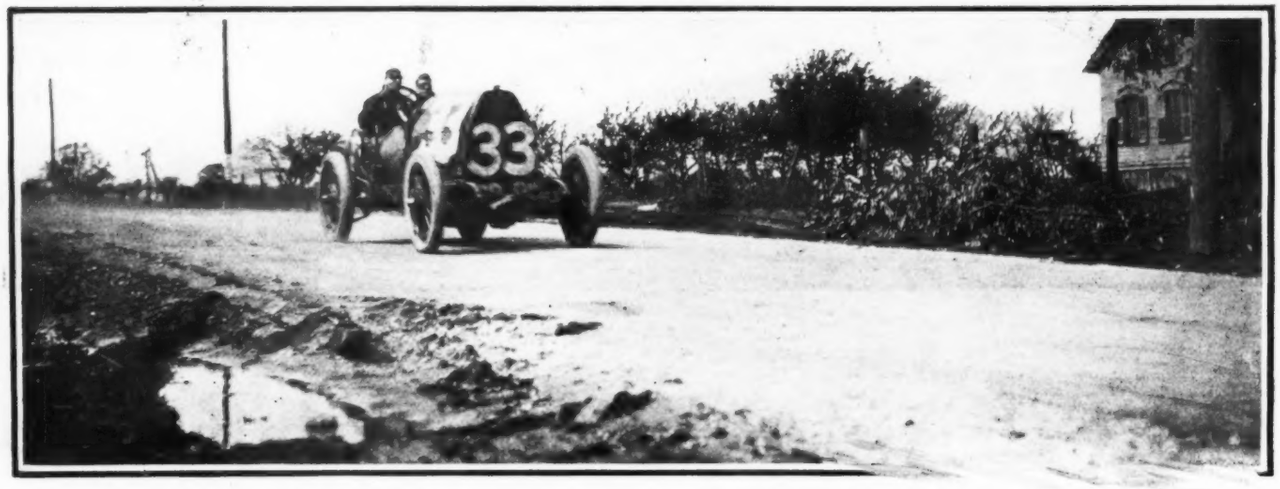
Ralph De Palma, Winner of 1912 Vanderbilt

THE SUMMARY

No.	Driver	Car	M.P.H.
1	De Palma	Mercedes	68.97
2	Hughes	Mercer	68.79
3	Wishart	Mercedes	65.
4	Anderson	Stutz	64.6
5	Clark	Mercedes	61.6

PREVIOUS VANDERBILT SPEEDS

Year	Miles	M.P.H.	Year	Miles	M.P.H.
1901	284.3	52.2	1908	288.6	64.3
1905	283	61.4	1909	278.08	62.8
1906	297.1	60.8	1910	278.08	65.18
1907	Not held		1911	291.38	74.07



Teddy Tetzlaff in the Fiat leading the field at over 74 miles an hour in the Vanderbilt cup race at Milwaukee

but they performed with credit to themselves and the drivers.

The Knox had a short airing, succumbing in lap 5, after encountering trouble in two of the earlier rounds. It did well while it was going, but it did not go far. Magneto trouble was announced as the cause of the failure of the Knox.

A magnificent crowd witnessed the running of the race, it being estimated that the stands and points of vantage contained at least 50,000 enthusiastic spectators.

The sentiment of the crowd was with Tetzlaff's Fiat, and as the big car took the pace and whisked away from its competitors in the early stages of the race the Californian was cheered repeatedly by the assembly. He kept shooting the car along under this encouragement and as events proved out his pace was too fast. He was fortunate with his tires and was obliged to draw up at the pits only once. This came in lap 19 and for the first time thus far in the race the Fiat failed to gain on the average time of the contenders. The round was made in about 8 1-2 minutes, and when he started away once more the lead of nearly 10 minutes was not materially reduced.

At this point in the contest the majority of the crowd was willing to concede victory to the Fiat, but the contending drivers, notably the cool, crafty Hughes and the mercurial De Palma, maintained their slower pace in anticipation of just what did happen to the flying leader.

It was a magnificent bit of generalship which was largely overlooked by the crowd, but it paid dividends in the final result. This pair could not be persuaded to sprint with Tetzlaff, but they hung on each other's skirts for 100 miles, waiting, waiting, like a pair of hawks. They nursed their cars carefully, changing tires together and taking supplies as nearly as possible at the same time.

To those who were motorwise in the crowd, this duel was the most beautiful thing about the contest. They both seemed to realize that the Fiat could not survive such a terrific beating as she was getting from the Californian and that the final test would be between them.

The big German car and the little yellow Jerseyite proved to be well matched and the finish, while not so close as some of those developed in Vanderbilt Cup races, was close enough to keep the crowd on tiptoe.

That the Mercedes won was due to the extra power of its motor and the handling it received from a great driver.

As to the Mercer, it can be said that considering its size it made the most wonderful showing ever displayed in a Vanderbilt Cup race.

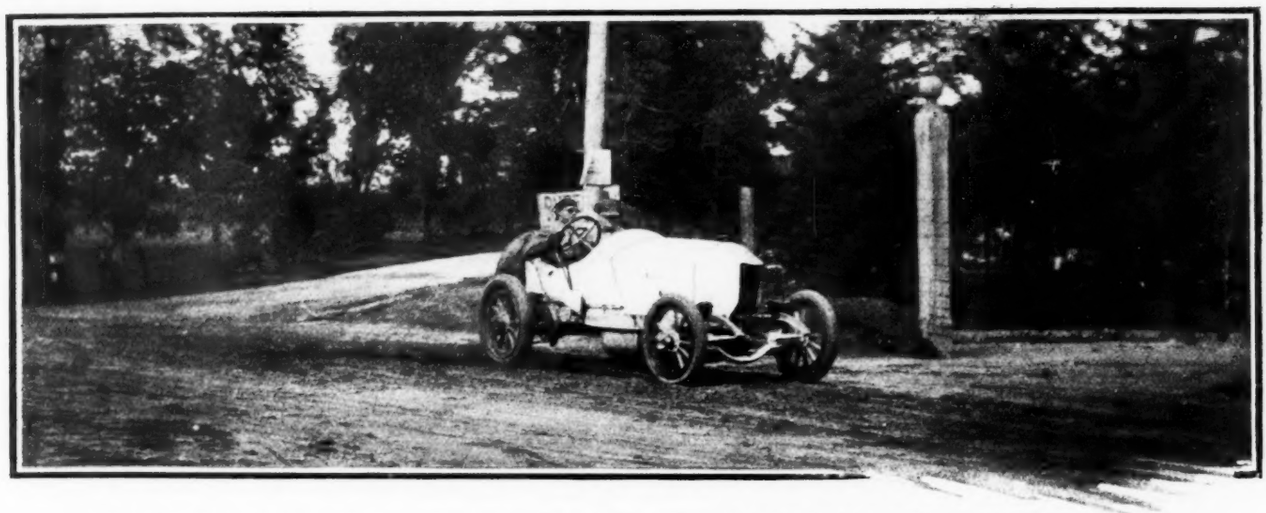
Although only five cars finished, their performance was consistent throughout and there was plenty of excitement for the 50,000 spectators who lined the course, mostly at the grandstand. Although no records were broken, the time was much faster than was anticipated by the officials of the meet and it looks good for the balance of the race to be run during the week.

De Palma, who crossed the tape well in the lead of most of his competitors, was wildly cheered by the spectators when he strolled back to the grandstand after putting his faithful Mercedes in its camp. It was easily seen that the big crowd was with the plucky driver, although they were sorry for the misfortune that befell Teddy Tetzlaff, who had driven at a daredevil pace until misfortune overtook him. De Palma drove a consistent race and the victory was deserved, coming as it did for the second time this year.

Considering the fact that the race was over a new course, the time which was made may well be regarded as remarkable. Every one rejoiced at the propitious weather conditions as well as at the state of the course which permitted the race to be run off in such good order from the viewpoint of both participants

RACE OF 299 MILES AND 2764 FEET (THIRTY-EIGHT LAPS OF THE COURSE) FOR THE

No.	CAR AND DRIVER	Lap Miles	1 7.88	2 15.76	3 23.64	4 31.52	5 39.40	4 47.28	7 55.16	8 63.04	9 70.92	10 78.80	11 86.68	12 94.56	13 102.44	14 110.32	15 118.20	16 126.08	17 133.96	18 141.84
22	**Mercedes**	Elap. Time	6:57	13:22	20:11	26:52	33:31	40:09	46:52	53:42	61:17	68:00	74:37	81:13	87:44	94:24	104:34	111:15	117:46	124:12
	De Palma	Lap Time		6:25	6:49	6:41	6:39	6:38	6:43	6:50	7:35	6:43	6:37	6:36	6:31	6:40	10:10	6:41	6:31	6:26
23	**Mercer**	Elap. Time	7:13	14:04	22:37	29:59	36:32	43:47	50:39	57:25	64:16	71:06	77:54	84:40	91:32	98:17	105:01	111:45	118:28	125:10
	Hughes	Lap Time		6:51	8:33	7:22	6:33	7:15	6:52	6:46	6:51	6:56	6:48	6:46	6:52	6:45	6:44	6:44	6:43	6:42
24	**Knox**	Elap. Time	6:31	13:17																
	Mulford	Lap Time		6:46	Out—Magneto trouble															
25	**Lozier**	Elap. Time	7:32	14:38	22:20	34:41	46:51	65:28	74:43	82:46	91:34	100:14	109:05	119:42	128:07	136:45	145:39	153:59	162:30	171:40
	Nelson	Lap Time		7:06	7:42	12:21	12:10	18:27	9:15	8:03	8:48	8:40	8:51	10:37	13:25	8:38	8:54	8:20	8:31	9:10
26	**Mercedes**	Elap. Time	6:52	13:14	21:33	27:59	34:23	40:48	47:15	53:14	60:22	66:53	73:25	83:33	90:18	96:55	103:07	110:05	116:45	123:27
	Wishart	Lap Time		6:22	8:19	6:26	6:24	6:25	6:27	5:59	7:08	6:31	6:32	10:08	6:45	6:37	6:12	6:58	6:40	6:42
27	**Stutz**	Elap. Time	7:23	14:32	21:40	28:46	35:54	43:02	50:12	57:21	64:29	71:36	78:57	86:11	93:26	100:40	107:54	115:10	122:27	129:45
	Anderson	Lap Time		7:09	7:08	7:38	7:08	7:08	7:10	7:09	7:08	7:07	7:50	7:14	7:15	7:14	7:14	7:56	7:17	7:18
28	**Mercedes**	Elap. Time	7:13	14:05	20:58	28:05	37:52	44:53	52:00	61:14	69:44	76:49	83:50	91:08	101:22	110:11	116:53	123:30	130:13	138:48
	Carle	Lap Time		6:52	6:53	7:07	9:47	7:01	7:07	9:14	8:30	7:05	7:01	7:18	10:14	8:49	6:42	6:27	6:43	8:35
29	**Fiat**	Elap. Time	6:27	12:42	19:00	25:15	31:34	37:56	44:16	50:40	57:03	63:22	69:45	76:08	82:33	89:01	95:18	101:41	108:07	114:33
	Tetzlaff	Lap Time		6:15	6:18	6:15	6:19	6:22	6:20	6:24	6:23	6:19	6:23	6:23	6:25	6:28	6:17	6:23	6:26	6:26



Ralph Mulford in the big six-cylinder Knox taking a sharp turn on a back stretch of the course early in the race

and spectators. The latter were intensely interested and enthusiastic throughout the contest, cheering madly whenever a favorite driver forged to the front or made a spectacular maneuver and feeling correspondingly depressed when some one was obliged to retire. This was especially marked when Teddy Tetzlaff failed to finish the twenty-sixth lap and was officially declared out of the race on account of his driveshaft breaking on the back stretch of the course.

But the most interesting way to follow an automobile race is to watch it as it progresses, lap by lap, observing the changeful aspect of the situation, so let us begin at the starting line and keep right up with the field to the finish:

The Vanderbilt 7.88-mile race course is in very good condition, the best it has been so far. The weather is ideal and fast time is looked for, although the spirits of some of the drivers are somewhat dampened by yesterday's accident. There are no damp or soft spots and those parts of the course which were in bad shape a week ago have been carefully rebuilt. Fast time should be made.

De Palma in his Mercedes was the first at the line. Hughie Hughes, in the yellow Mercer, was beside him. Back of them were Mulford, in the Knox, and Nelson in the Lozier. The third pair consisted of Wishart, in Mercedes 26, and Anderson, in his Stutz. Clark, who disabled his car at Elgin, was at wheel of the third Mercedes, and he, together with Tetzlaff in the lone Fiat, brought up the rear. Pullen, who was to have driven Mercer 21 was disqualified by the technical committee yesterday because the piston displacement of his car was below the necessary 301 cubic inches. This made the number of starters eight. De Palma got a bad start and did not jump into motion as he usually does. Although his start was slow, he quickly shot away amid the cheers of the 50,000 spectators and the race was on.

Hughie Hughes came in for an equal amount of cheers and was off to a quick start with his Mercer.

The others came in for a like amount of applause and were off in the order mentioned.

Tetzlaff, the last to start, was easily a favorite with the vast throng. It was as though they looked to him to carry off the Fiat honors for himself as well as for his dead team-mate.

At the first lap, De Palma, Hughes and Mulford were running about evenly, although Tetzlaff appeared to be gaining. Wishart came next, having passed Nelson. Tetzlaff followed and was trailed by Clark. Tetzlaff tore past the stand and made the fastest lap of the bunch, completing the circuit in 6:27, at the rate of 73.4 miles an hour. At the end of the initial lap the order was Fiat, Knox, Wishart, Mercedes, De Palma, Mercedes fourth, and Hughes and Clark tied for fifth with Stutz seventh and Lozier last.

On the third lap, Tetzlaff was in the lead, closely followed by De Palma. Then came Clark, Wishart, Anderson, Hughes and Nelson in the order named. Mulford was held on the back stretch for engine trouble. The next lap saw no change in the positions of the two leaders, although Wishart changed places with Clark. The others retained their third-lap positions. Mulford bringing up the rear. On his fourth lap, Nelson stopped at pit on account of engine trouble. He was obliged to stop for 3 minutes on back stretch for the same reason.

Mulford was again forced to stop in his fifth lap for magneto trouble.

The trouble proved of such serious nature that Mulford was obliged to quit the race.

Clark was forced to stop on the back stretch in his fifth lap, which put him in fifth place and gave his former position to Anderson in the Stutz.

VANDERBILT CUP RUN AT MILWAUKEE, WIS., ON WEDNESDAY AFTERNOON, OCTOBER 2

19 149.72	20 157.60	21 165.48	22 173.36	23 181.24	24 189.12	25 197.00	26 204.88	27 212.76	28 220.64	29 228.52	30 236.40	31 244.28	32 252.16	33 260.04	34 267.92	35 275.80	36 283.68	37 291.56	38 299.51	M. P.	H.	Pos.
130:38	137:16	143:41	151:47	158:13	164:32	171:03	177:33	183:57	190:29	199:44	206:31	214:01	220:45	227:26	234:00	240:33	247:15	253:59	260:31.54	68.97		1
6:26	6:38	6:25	8:06	6:26	6:19	6:31	6:30	7:24	6:22	9:15	6:47	7:30	6:44	6:41	8:34	6:33	6:42	6:44	6:32			
131:52	138:33	145:20	153:26	160:25	167:10	174:00	180:46	187:38	194:41	201:34	208:11	214:49	221:24	228:04	234:44	241:19	247:54	254:32	261:14.24	68.79		2
6:42	6:41	6:47	8:06	6:59	6:45	6:50	6:46	6:52	7:03	6:53	6:37	6:38	6:35	6:40	6:40	6:35	6:35	6:38	6:42			
179:30	190:16	199:24	208:10	217:33	227:05																	
7:50	10:46	9:08	8:46	9:23	9:32																	
130:12	139:24	146:16	153:04	162:05	168:57	175:38	182:35	189:24	196:12	207:06	213:52	220:37	227:26	239:51	248:58	255:38	262:56	269:36	276:35.75			3
6:45	9:12	6:52	6:48	9:01	6:52	6:41	6:57	6:49	6:48	10:54	6:46	6:45	6:51	12:25	9:07	6:40	6:58	7:00	6:59			
137:14	144:21	151:32	159:09	168:51	176:11	182:28	190:43	198:05	205:24	213:02	222:24	229:34	236:42	243:53	250:57	258:12	265:21	272:30	279:40.95			4
7:29	7:07	7:11	7:37	8:42	7:20	6:17	8:15	7:22	7:19	7:38	9:22	7:10	7:08	7:09	7:04	7:15	7:09	7:09	7:10			
145:51	152:38	159:19	166:15	173:04	179:48	186:32	193:17	200:08	206:53	214:03	224:25	231:33	238:28	245:22	252:19	259:42	268:46	275:38	291:39.75			5
7:03	6:47	6:41	6:56	6:49	6:44	6:44	6:45	6:51	6:45	7:10	9:22	7:08	6:55	6:54	6:57	7:23	9:04	6:52	6:01			
123:04	129:39	136:07	142:37	149:01	155:41	164:11																
8:31	6:35	6:28	6:30	6:24	6:40	8:30																

Hughie Hughes, who captured second place in the Vanderbilt with a Mercer

On his sixth lap, Nelson's Lozier developed brake trouble which put him out of the running, although on the stretches he appeared to be going well.

On the ninth lap, Tetzlaff was still way ahead, his average for the nine laps being 74.9 miles an hour. De Palma still second in the seventh lap, had covered a distance of 55 miles at an average speed of 70 miles.

It was in the ninth lap that Wishart, in Mercedes 26, succeeded in nosing De Palma out of second place. This Wishart held for three more laps, but on the twelfth, he was forced to stop at the pit to change a tire. This gave the second place to De Palma again. But all this time, Tetzlaff was fairly burning up the course, completing twelve laps or nearly 95 miles at an average speed of 75.4 miles an hour.

At the end of lap 13, with the race practically one-third run, the Fiat had established a commanding lead of almost 5 minutes and was going steadily at the rate of approximately 74 miles an hour. De Palma's Mercedes had maintained second place but was gradually losing. Wishart was third, ahead of the fast coming Mercer. The Stutz held fifth place with the Clark Mercedes and Lozier trailing, the latter completely distanced.

In the fifteenth lap, Wishart again forged ahead of De Palma. The latter was forced to stop at the pit to replace a tire. While at the pit, he also took this opportunity to replenish his oil and gasoline tanks. This allowed Wishart a lead of 22 seconds over De Palma, these two cars furnishing a neck and neck race so far.

From the ninth lap through the first half of the race, or about 150 miles, Hughes ran consistently in fourth position, while Anderson in the Stutz, Clark in the Mercedes, and Nelson in the Lozier, followed in the order named.

As to the three leaders, no change in their respective positions occurred from the fifteenth lap on through the nineteenth, or century and a half mark.

Considerable tire trouble developed thus far in the race, although up to this time Tetzlaff has not been troubled with his tires.

On his nineteenth lap however, he slowed up at the pit to the dismay of the crowd. A left rear tire was replaced and at the same time, water, gasoline and oil were taken on.

On his twelfth lap Clark lost time by misjudging his stop at the pit and being obliged to back up. He changed both rear tires and also took on gasoline.

De Palma's right rear tire had to be changed on the fifteenth round, in which operation 39 seconds were consumed.

Laps twenty and twenty-one were troublesome for several of the drivers although they made remarkably quick changes at the pits. Wishart took 28 seconds to replace a rear tire, a speed record for this operation.

At the start of the second half of the grind, Tetzlaff looked like a sure winner, he being 7 minutes ahead of his nearest rival, Wishart.

At the beginning of the twentieth lap, the contestants stood: Tetzlaff, De Palma, Hughes, Wishart, Anderson, Clark and Nelson. This order held for the next lap, but in the twenty-second, Hughes relinquished his position to Wishart. The former was obliged to stop at the pit for gasoline, oil and water.

Hughes, however, hit it up after thus rejuvenating his car and regained his former position in third place on the twenty-fourth lap. The other cars maintained their positions as at the start of the second half. On the twenty-second lap Anderson was obliged to stop at the pit for oil and gasoline, while in the twenty-third, Wishart had to stop to replace a front tire. Tetzlaff's average speed for twenty-five laps was 72 miles an hour, De Palma's 69.1, Hughes' 67.9 and Wishart's 67.4.

Tetzlaff died in front of lap twenty-six, while leading his field by almost 7 minutes, having averaged 72 miles an hour. De Palma finished the lap in the lead. The Fiat had made the pace from the start and averaged fully 3 miles an hour faster than the next speediest up to the moment of withdrawal. The car was timed at 197 miles. The Mercer was second, 3 minutes behind De Palma. Wishart, Anderson and Clark followed in the order named. Nelson succumbed in lap twenty-five.

It was in his twenty-sixth lap that misfortune overtook Tetzlaff, when the drive-shaft of his big Fiat broke on the back stretch, putting him permanently out of the race. After going 205 miles, at an average speed of nearly 75 miles an hour, he was obliged to sit by the wayside and see the honors go to one of his rivals when it seemed almost certain that the race was his. Tetzlaff's hard luck recalled De Palma's fate at Indianapolis last June, and there was a murmur of dismay from the crowd when the husky voice of the announcer proclaimed that Teddy Tetzlaff, easily a favorite with them all, was out of the running for keeps.

Tetzlaff's fastest lap, and which proved to be the fastest lap of the race, was his third, when he completed the circuit in 6 min. 15 sec., an average speed of 75.70 miles an hour. This was 1.35 faster than the average time of last year's Vanderbilt.

With Tetzlaff's misfortune, De Palma took the lead, never losing the premier position from then on to the end, driving the remaining 94 miles at a dare-devil clip.

Nelson in his Lozier rounding the southeast corner of the course near the city limits

Tetzlaff out, Hughie Hughes, in his Mercer, assumed second position. It was only a matter of seconds between him and the leader to the end. Wishart was now third, Anderson fourth, Clark fifth and Nelson sixth. Excitement was running high, for it was seen that, should anything happen to De Palma, Hughie Hughes would be the victor. Only the time required for a tire change separated the leaders.

De Palma and Hughes knew this full well. On the back stretch on his 28th lap, De Palma blew a tire, but this did not materially affect his time, he running to the pit to make the change. On the 29th lap, De Palma led the Englishman by 1 minute 50 seconds.

The 29th lap proved disastrous for three of the cars, although from the 26th on to the end of the race there were no changes of the positions of the contestants. After the 27th lap, the list was cut down to five cars. Nelson in the Lozier in this lap withdrew from the race because he was too far behind. Wishart was obliged to put a new chain on his Mercedes on the back stretch in the 29th lap, while in the same lap Clark, Anderson and De Palma were obliged to call at the pits for new tires for the rear of their cars. Again in the 31st lap, De Palma was forced to stop for a tire change, but Hughes in the following lap had to stop for gasoline and water, which practically evened things up. The other cars were still in the positions which they had held from the 205th mile.

Although De Palma and Hughes were traveling at a terrific pace, their speed was considerably below that which Tetzlaff had set earlier in the day.

De Palma's average speed was 68.9 miles an hour, about 5 miles less than that of Tetzlaff.

On the 33d lap the Italian led by 30 seconds, but Hughes cut this down 1 second ere another circuit had been made. At the end of the 35th, however, De Palma had increased his lead by 8 seconds. He now had the best of his rival in the yellow Mercer by 46 seconds. Again Hughes cut this down, when, after completing 36 laps, he was found to be only 39 seconds in the rear. Two laps later, however, when De Palma flashed across the tape winner of the eighth Vanderbilt cup race, Hughes was still at about the same position. The other cars finished in good shape, Wishart being the third to receive the checked flag, followed by Anderson and Clark. The latter had tire trouble in his 35th lap.

De Palma's time for the distance of 299 miles 27.64 feet was 260 minutes 11.54 seconds, making an average of 68.9 miles an hour for the entire race.

Hughes completed the distance in 261 minutes 14.24 seconds, averaging 68.8 miles per hour. Wishart's time was 276 minutes 35.75 seconds; Anderson's was 279 minutes 40.95 seconds, while that of Clark was 291 minutes 39.75 seconds.

These speeds are good, considering that the course has sharp turns and there are severe grades. For a new course the racing fans should feel well satisfied with the results.

Bruce-Brown's Fatal Accident

The late David Bruce-Brown

MILWAUKEE, WIS., Oct. 1—David Bruce-Brown, millionaire racing driver, died this afternoon at 3:15 at the Trinity hospital here, from a basal skull fracture as a result of the ditching of his Fiat car, in which he was speeding at the rate of about 82 miles an hour on the Wauwatosa course, while in practice for the Vanderbilt Cup race which is to be run tomorrow. His mechanician, Anthony Schudelare, whose skull was also fractured, lies at the point of death.

The accident occurred on the back stretch shortly before 1 o'clock when the entrants in tomorrow's big event were at the height of the day's practice. One of the rear tires of the big Fiat exploded, causing the car to lurch into the ditch. In a vain attempt to right the machine Brown jerked the wheel in the other direction causing the car to jump to the opposite side of the road. Both driver and mechanician were pitched out of the car, which turned over and crashed through a fence. Brown and his mechanician were picked up unconscious by farmers who had witnessed the accident. Word was immediately conveyed to the officials and both men were rushed to the Trinity Hospital where they were operated upon. Brown never regained consciousness. The accident occurred on the lap following that in which Brown had made the circuit in 5:53.82, unofficially establishing a new world's speedway record at 82.2 miles per hour.

The first inkling of the disaster reached the grandstand and officials when Tetzlaff, Bruce-Brown's team-mate, in another Fiat drew up before the stands to inquire where Brown was. Tetzlaff missed the other car which had been close behind on the back stretch. Meager reports of the disaster began to come in soon after. To have escaped disaster after blowing a tire while traveling at such a terrific speed would have been nothing short of a miracle and the accident can in no way be ascribed to the condition of the course, which has been put in excellent shape since a week ago when the races were at first scheduled to take place.

Although practice was called off immediately after the accident, the unfortunate occurrence will in no way interfere with the running of the Vanderbilt Cup race tomorrow as scheduled.

David L. Bruce-Brown was born in New York City, in 1887, and began racing in 1907. His first appearance was in an Oldsmobile at the Empire City track, where he won his first race. In 1908 he acted as mechanician for the late Cedrino at Ormond Beach. His two most brilliant victories were the Grand Prize races at Savannah in 1910 and 1911, the latter in the same Fiat which he was driving today.

In the French Grand Prix this year, he won the first leg of the 2-day event, and finished third, but was disqualified for taking on gasoline outside a regulation station.

As a racing driver Bruce-Brown was looked upon as the best, not only in America but in the entire world. Built around a rugged framework were as stout a set of muscles as any athlete of his age and height could boast of, a fact which made the racing car more or less of a plaything in his hands so far as guiding it on the highway. Born in 1887, he began driving in 1907 when but 20 years of age. His first appearance was in a race at Empire City track in 1907. The following year brought him into the limelight at the Florida beach races where he acted as mechanician to Cedrino and also drove his Fiat, establishing new amateur beach records. After that he gained prominence in hill-climbs, winning Giants Despair, in his Benz, in 1909. His great fame came at Savannah, in 1910, when he won the grand prize race, averaging 70.45 miles per hour for the 415 miles. Last year he again won this American classic, gaining the distinction of being the only driver to win the grand prize twice in succession, averaging 74.45 miles per hour with his Fiat for the 412 miles.

Trade News of the Week

Knox Automobile Company Makes Assignment Because of Lack of Funds To Pay Current Expenses

Ford Cuts Prices and Increases Output—Chalmers Adds to Capital, Lowers Prices and Pays Dividend

SPRINGFIELD, MASS., Sept. 28—Considerable surprise was created here today when the announcement was made that the Knox Automobile Company, one of the best known concerns in the country, had made an assignment for the benefit of its creditors to Edward O. Sutton and Harry G. Fisk. It is estimated that the assets of the company as a going concern are about $2,000,000 and its liabilities exclusive of its capital stock are about $1,300,000. The immediate cause of the assignment was a lack of funds to pay current expenses and it was said that there was hardly enough cash on hand to meet the weekly pay-roll last week. As a result the directors held a meeting Friday evening and they voted to make an assignment, so the papers were made out in the office of Charles H. Beckwith and filed shortly before noon today.

Unless creditors who have not already assented to the program of the directors in making an assignment take such action as will throw the company into bankruptcy, the trustees will keep the factory in operation for the present. The company has been doing a good business lately and there are many orders on the books for both pleasure cars and trucks, many of them fire wagons. Mr. Sutton stated that a curtailment of expenses will be necessary to pull the company through the assignment without going into bankruptcy, and this will be made by a lessening of the force and a temporary reduction in output. This will be divided equally between the lines as the orders have been coming in generally in equal numbers.

The Fisk Rubber Company is one of the largest creditors of the company, the amount being about $75,000. To the estate of the late Alfred N. Mayo, who a few months ago at the time of his death was treasurer of the company, there is due about $900,000, consisting chiefly of the company's notes. Mr. Mayo was the largest owner of Fisk company stock and Harry G. Fisk is a son-in-law of Mr. Mayo, so also is Mr. Sutton, secretary and assistant manager of the company; thus the matter is somewhat of a family affair. Knox company notes aggregating $70,000 indorsed by Mr. Mayo are held by banks, of which $30,000 are held in Springfield. The remaining $270,000 of liabilities are held by about 300 creditors scattered about the country. Not one of them reaches $5,000 and none of them is pressing, so that the company has a good chance to get going again.

There is outstanding nearly $1,000,000 of capital stock, much of which is held in and about Springfield. About one-half of this is preferred stock, and represents the liabilities of the Knox company to its creditors 5 years ago when the creditors agreed to take their pay in this stock. Whether the stockholders will get anything back now is a question. If the company should now be liquidated the outstanding debts could hardly be paid. The $2,000,000 assets are said to include $315,000 for the real estate, $1,200,000 for finished product and stock in process of manufacture and about $200,000 in bills receivable. The Mayo estate is so large that it can withstand the present trouble as it comprises besides the Fisk Rubber Company, the Merrimac paper mill at Lawrence and large interests in a brick making industry.

Mr. Mayo went into the Knox company originally through being a creditor when the company became involved in 1907 after several years of prosperity. An assignment was then made to Mr. Mayo and he took up the management of the company with energy and ability. He cleared things up and returned the management of the business to the company of which he became treasurer. The preferred stock issued in payment of debts at that time reached $494,700 and was cumulative 8 per cent., being preferred not only as to dividends but as to principal in cases of liquidation, to the $500,000 common stock. The first year following the company did a big business, clearing $160,000 and next year double that amount. Three semi-annual dividends of 4 per cent. were paid and things looked bright. But two bad years followed and Mr. Mayo had difficulty to finance the company and on his death last summer there was much speculation as to the future of the company.

NEW YORK, Sept. 30—Parts makers and manufacturers of accessories shortened credit lines to the Knox company, after the death of Mr. Mayo but despite that precaution many of them are heavily involved in the failure. Schedules are being prepared upon which to base a reorganization.

Ford Swells Product: Cuts Prices

DETROIT, MICH., Sept. 30—The Ford Motor Company announces a reduction in price on all models to take effect October 1. The figure on the runabout, model T, has been placed at $525, on the touring car $600, and on the town car $800. This price reduction is ascribed to the great increase in Ford production, it being reported that nearly 200,000 machines will be turned out of the Ford factory during the 1913 season.

Chalmers Increases Stock: Pays Dividend

DETROIT, MICH., Sept. 30—At a meeting of the stockholders of the Chalmers Motor Company held October 1, the corporation voted to increase its capital stock from $3,000,000 to $5,000,000. Of this amount, $1,000,000, was paid in stock dividends to the

Automobile Securities Quotations

Changes noted in the market for automobile and accessory securities were few and unimportant during the past week. While the general range was small, individual securities were slightly irregular. American Locomotive, Firestone common, Goodrich, Studebaker common and United States Motor Company were lower and Consolidated, General Motors, Pope and Studebaker preferred were stronger. The whole trade awaits the official announcement with regard to U. S. Motors. The comparative table follows:

	1911		1912	
	Bid	Asked	Bid	Asked
Ajax-Grieb Rubber Co., common	..	..	150	175
Ajax-Grieb Rubber Co., pfd	..	..	95	100
Aluminum Castings, preferred	..	..	100	102
American Locomotive, common	35½	36	45½	46
American Locomotive, preferred	105	106	107	109
Chalmers Motor Company	..	..	145	155
Consolidated R. T. Co., common	5	8	14	16
Consolidated R. T. Co., pfd	10	20	50	60
Firestone Tire & Rubber Co., com	175	180	270	275
Firestone Tire & Rubber Co., pfd	106	108	107	109
Garford Company, preferred	..	..	99	101
General Motors Company, common	38	41	37	39
General Motors Company, pfd	76	79	80	82
B. F. Goodrich Company, common	237	242	75	75½
B. F. Goodrich Company, pfd	118	119	106½	107¼
Goodyear Tire & Rubber Co., com	225	230	330	..
Goodyear Tire & Rubber Co., pfd	105	107	105	106
Hayes Manufacturing Company	..	..	..	92
International Motor Co., common	..	..	26½	27½
International Motor Co., pfd	..	..	81	83
Lozier Motor Company	..	..	43	50
Miller Rubber Company	..	..	..	140
Packard Motor Co., preferred	104	106	105½	107
Peerless Motor Company	..	..	116	120
Pope Manufacturing Company, com	55	65	36	37
Pope Manufacturing Company, pfd	73	75	73½	75
Reo Motor Truck Company	8	10	10	11
Reo Motor Car Company	23	25	24	25
Studebaker Company, common	..	..	42	44
Studebaker Company, preferred	..	..	95	97
Swinehart Tire Company	..	..	99	101
Rubber Goods Company, common	85	95	100	..
Rubber Goods Company, preferred	100	105	105	110
U. S. Motor Company, common	28	29½	1¼	1¾
U. S. Motor Company, preferred	69	70½	4½	5
White Company, preferred	..	..	107	109

shareholders, and the other $1,000,000 was placed in the treasury for future use. The regular quarterly cash dividend of 2 1-2 per cent., payable October 1, was also declared at the meeting. This amounts to about $75,000. The closing price of the Chalmers stock on the Detroit exchange on September 28 was 156, and figuring on this basis the new stock issue of 10,000 shares has a value of $1,560,000.

The Chalmers Motor Company since its incorporation has enjoyed a wonderful growth, having extended its factory in 5 years from a single 3-story building to the present plant.

Rubber Off 2 Cents in Quiet Market

Crude rubber dropped 2 cents a pound at the close of the week, sales being made below $1.10 for up-river fine where the level had been maintained at $1.12 heretofore. Trade was sluggish and without sharp selling pressure. The offerings were large but the market absorbed them easily at the recession. The ease of the local market was a reflection of similar conditions in London. Plantations were steady at the former level, which makes a difference between up-river and pale crêpe of 6 1-2 cents a pound, with the crêpe occupying the higher level.

Henderson to Leave Cole

INDIANAPOLIS, IND., Oct. 1—In order to assume the presidency and take active part in the Henderson Motor Car Company, arrangements have been made whereby C. P. Henderson, Director and General Sales Manager of the Cole Motor Car Company, will discontinue the Cole sales work on October 25. This move will be a surprise to the automobile industry in general, as Mr. Henderson has directed Cole sales work and policies since the inception of that company.

Market Changes of the Week

This week's market showed a decrease in rubber of $.02 1-2, in lead of $.07 1-2 and in cottonseed oil, of $.05, all due to lack of trade. Tin varied throughout the week, rising on Monday to $5.10, but falling to $5.03, its price on Wednesday, thus making no gain for the week. Antimony experienced a small gain of $.00 5-8 while copper remained unchanged and lead declined slightly.

Material	Wed.	Thurs.	Fri.	Sat.	Mon.	Tues.	Week's Change
Antimony, per lb.....	.08¼	.08¾	.08⅞	.08⅞	.08⅞	.08⅞	+ .00⅝
Beams & Channels, 100 lbs.	1.51½	1.51½	1.51½	1.51½	1.51½	1.51½	.....
Bessemer Steel, Pittsburgh, ton	24.00	24.00	24.00	24.00	24.00	24.00	.....
Copper, Elec. lb....	.17 13/20	.17 13/20	.17⅝	.17⅝	.17⅝	.17⅝	— .00 1/20
Copper, Lake, lb.....	.17 7/10	.17¾	.17¾	.17¾	.17¾	.17¾	+ .00 1/20
Cotonseed Oil, Sept., bbl...	6.23	6.15	6.20	6.23	. . .	6.18	— .05
Cyanide, Potash, lb.....	.19	.19	.19	.19	.19	.19	.....
Fish Oil, (Menhaden)	.33	.33	.33	.33	.33	.33	.....
Gasoline, Auto, 200 gals. @..	.21	.21	.21	.21	.21	.21	.....
Lard Oil, prime	.85	.85	.85	.85	.85	.85	.....
Lead, 100 lb...	5.17½	5.15	5.15	5.15	5.10	5.10	— .07½
Linseed Oil....	.68	.68	.68	.68	.68	.68	.....
Open-Hearth Steel, ton....	25.00	25.00	25.00	25.00	25.00	25.00	.....
Petroleum, bbl., Kansas crude	.70	.70	.70	.70	.70	.70	.....
Petroleum, bbl., Pa, crude...	1.60	1.60	1.60	1.60	1.60	1.60	.....
Rapeseed Oil, refined	.68	.68	.68	.68	.68	.68	.....
Rubber, Fine Up-river Para	1.11½	1.12	1.12	1.12	1.12	1.09	— .02½
Silk, raw Ital..	....	4.15	....	....	4.15	....	.....
Silk, raw Japan	....	3.82½	....	....	3.85	....	+ .02½
Sulphuric Acid, 60 Beaumé..	.99	.99	.99	.99	.99	.99	.....
Tin, 100 lbs...	5.03	5.10	5.09	5.09	5.10	5.03	.....
Tire Scrap....	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.09⅛	.....

Plan for U. S. Motors

Official Announcement Not to Be Made Before Thursday, But Tentative Scheme May Be Satisfactory

Proposes Selling to New $28,000,000 Company—Present Stockholders to Pay $22.50 Per Share for New Stock

WHILE the official situation as regards the affairs of the United States Motor Company is indecisive, the following tentative plan of reorganization has been published in New York covering the reorganization by Wall street specialists in the securities of the company.

According to L. P. Cartier, the plan appended was submitted to all the interests involved in the problem of reorganization and was pronounced accurate except as to the details of distribution under the plan of assessment.

Officially, the reorganization plan will not be announced before Thursday afternoon, but it is generally understood that the plan has been arranged and the steps to be taken between Tuesday and Thursday are perfunctory.

The plan suggested to those interested is as follows:

"The U. S. Motors reorganization plan has been practically decided upon with the possible exception of a few minor details. The plan provides for the equitable protection of all parties at interest and works out to the advantage of both the present preferred and the common stockholders. While the company is now in the hands of a receiver, the receivership is a friendly one and is for the sole purpose of legally conserving the assets of the company in the interest of all concerned.

"A general outline of the reorganization plan is as follows:

"The present company will be sold to a new company, which will have a capitalization of about $28,000,000 par value. The new company will have three classes of stock. $10,000,000 first preferred 7 per cent. cumulative stock, $8,000,000 second preferred 6 per cent. non-cumulative, and $10,000,000 common. There will be no bonds or debentures, and no fixed charges of any kind.

"The present obligations of the company, amounting to about $12,000,000, will be taken care of as follows: The $6,000,000 outstanding debentures will be exchanged for new stock; $4,000,000 notes held by banks will be exchanged for new stock; merchandise bills amounting to about $2,000,000 will be paid in cash.

"Present stockholders will be permitted to exchange their holdings for stock in the new company upon payment of $22.50 a share on their old stock. The proceeds of these subscriptions will amount to approximately $5,500,000. The subscriptions will be underwritten by prominent New York bankers.

"As the company now has in the treasury about $1,500,000, the new company will have approximately $5,000,000 working capital after the payment of the $2,000,000 merchandise bills. The new company will, therefore, start out free of debt and without fixed charges, with no obligations and with about $5,000,000 working capital.

"It is estimated that the present assets of the U. S. Motors Company, which will be owned by the new corporation, have a conservative book value of at least $18,000,000 to an operating company, and are probably worth considerably more in the hands of a new, well-organized concern such as the new company will be. With the $5,000,000 working capital added to these book values the company will have good assets of at least $23,000,000 back of the $28,000,000 total issue of stock. This means that there will be values of two and one-third times the total issue of first preferred stock, one and five-eighths times the second preferred stock and about one-half on the common stock. In other words, there will remain $5,000,000 of assets against $10,000,000 par value of common stock.

"It is conceded by all familiar with the present business of the U. S. Motors Co. that with an adequate working capital the company would have earned in excess of $2,000,000 a year and that $2,000,000 is a conservative estimate of the new company's earnings during the next twelve months. This will leave, after the payment of first and second preferred dividends, about $1,220,000 for depreciation, reserve and dividends on the common stock.

"Upon payment of $22.50 a share on 100 shares of old preferred stock there will be issued therefor in stock of the new company, approximately:

30 shares of first preferred 7 per cent. cumulative stock,
20 shares of second preferred 6 per cent. non-cumulative stock.
30 shares of common stock.

"On the payment of $22.50 a share on 100 shares of old common stock there will be issued therefor in stock of the new company, approximately:

22½ shares of first preferred 7 per cent. cumulative stock,
20 or 17½ } shares of second preferred 6 per cent. non-cumulative stock,
20 or 25 } shares of common stock.

"Based on the assets that will be in possession of the new company it is estimated that the new stock should have the following values:

First preferred .....$90 a share.
Second preferred ..... 70 a share.
Common ..... 10 a share."

British Want $1,000 Car

Manufacturers and Engineers Certain Such a Machine Can Be Successfully Built in England

Would Not Interfere in Any Way with the Existing Automobile Firms in That Country

LONDON, ENG., Sept. 21—Interest in the production of a $1,000 car of all the British manufacturers continues at high tension. The leading engineers who have recently studied the American market are certain that it is possible of attainment. Robert W. A. Brewer, who spent several weeks this summer studying the American industry, thinks it is possible, basing his conclusions on careful observations made during his American visit and also backing it up by figures on materials and parts, for such a car as can be purchased on the home and foreign markets. Mr. Brewer says:

"There is a market for this small car. It must equal similar American cars in performance, so that it will meet the American car not only at home but also in our colonies. In Canada and Australia, bodies could be supplied for such a car by makers in the respective countries. In selling cars, appearance goes a long way, and to develop a rapidly growing business it will be necessary for the manufacturer to cater to the wants of the public in bodies.

"The feeling is gaining ground here that it is far better for the buyer to purchase a stock car for $1,000 and spend a little additional money in adapting it to his own purposes than it is to buy a more expensive car produced to suit his particular whims. It is not the intention of the movement to start a co-operative scheme, as has been voiced by certain trade journals. The plan is that all those who are supplying the manufacturing company with parts, or who are rendering service by sales or otherwise, shall become stockholders in the concern. In this way they make their profit and receive a fair and reasonable payment.

"It is not a question of tariff whether the cars that sell at $1,000 can be made or not. We can make the car at the price. The time will come when by good management and modern business methods the all-British $1,000 car will make itself seriously felt by those who import American cars. We hope that soon a strong unionist government will be in power, and will be enabled to pass such measures in parliament as will put a substantial tariff on the importation of American cars, so that in spite of the cutting of prices, the price to the consumer will remain at least equal to that which is charged for the British product.

"The production of the $1,000 car will not interfere in any way with any of the existing motor car firms in England. It will educate the buying public to the use of a British car in preference to an American one."

S. F. Edge, commenting on the situation, says: "The scheme is excellent, and only wants the proper support of capitalists to make it a success. I am sorry to see any motor cars imported into this country; they should be made here, and the wage money spread through our land."

E. Berkeley Omerod, in speaking on the matter, said: "We must set out to supply the demand for a low-priced British car in a well-thought-out manner. A tariff would greatly affect eventualities, but concerted and immediate action is needed. This is not a question of British makers casting aside established factories and high-class cars, but of formulating a scheme whereby we can establish in this country the manufacture of a low-priced car for the man of small means."

A leading engineer who has studied the situation says: "The majority of motor cars in the United States are not made by one single firm; they are made by dozens of firms, each of which is a specialist in the making of certain parts. They are then assembled at the factory and given a name. The total cost of every part which goes to make a complete car of a really high standard sold in the United States at $1,500 is approximately $625. What we want is a combination of firms in this country, each to supply various parts for the British car."

British Merger Talk Subsiding

According to officials of the federal government, financial interests in New York and several important factors in the automobile, the recent talk about the imposition of a preferential tariff against American automobiles of low and moderate price by Great Britain, is a subterfuge. The subject has been thoroughly aired since it was first announced, and the uniform conclusion reached is that there will nothing develop.

The government officials point out that there is a maximum and minimum clause in the Payne-Aldrich law which provides for such emergencies. Under the law, if any discrimination is made against American manufactures it is possible to slide up the rates against all classes of manufactured imports from the discriminating country and by doing that it would impose an additional duty of 25 per cent.

The financial interests state that the agitation for a tariff is probably a counter-diversion to cover the financing of a big automobile merger in England.

The automobile industry takes the position that the American makers have too long a lead to be caught at this late day and that if retaliatory measures are adopted, the competition would be rendered fiercer and that the smaller production of the British factories and the consequent higher price of the automobiles turned out would accentuate the stress of present conditions without aiding the British makers.

Reply to Be Made in Huber Suit

DETROIT, MICH., Sept. 28—On October 7, a reply to the claims of the Detroit Taxicab and Transfer Company, which concern is the nominal defendant in a patent infringement suit brought through its attorney, R. A. Parker, by the North American Vehicle Company, of this city, owner of the Emil Huber patent relating to the three-point suspension of the main frame of an automobile, will be filed in the United States District Court. The Kelly Motor Truck Company, Springfield, O., whose make of motor trucks the Detroit Taxicab and Transfer Company owns, is defending the case for the latter concern, through its attorneys Staley & Bowman, of Springfield.

Screw Patent to Be Tested

Suit has been filed in the United States District Court by the Du Bois Safety Lamp Company against the Gray & Davis Company for alleged infringement of patent number 919,837, which covers a certain type of set-screws used inside instead of outside the lamp structure. Duell, Warfield & Duell represent the complainant. The matter is returnable on the October rule day, and will be answerable 30 days thereafter. The patent while apparently of minor importance is said to involve considerable values.

Decrees *pro confesso* have been taken by the Enterprize Automobile Company against the following named defendants for violation of the Dyer patent rights owned by the complainant company: Benjamin R. Wurtzel, Sultan; James Barnshaw, Darracq; Oscar L. Lyons, Mais; John J. Conners, Charron; Henry F. Naresca, Lion; Herman Grossman, Sultan, and Frank Ritzo, Hotchkiss.

Adolph S. Bergquist has been granted an individual license and an importer's license has been issued to the Adams-Lancia company.

Hoosiers Hosts to Dealers

Merchants and Salesmen at Indianapolis October 8 and 9 to Study Selling and Advertising

Electric and Commercial Branches of the Industry Interested as Well as the Gasoline Element

INDIANAPOLIS, IND., Sept. 30—Indianapolis swings open her doors to the retail motor car merchant and his salesmen on October 8 and 9. During those 2 days the guests of the Indianapolis automobile manufacturers and those motor car manufacturers from other cities who are coming here to help his dealer and salesmen will be given an opportunity to get the inside on intensified salesmanship and advertising.

This, therefore, is the purpose of the gathering: Every person interested in the automobile field, irrespective of what line he handles, is invited to attend. Not only will the general speakers from the platform talk on their respective viewpoints, but automobile merchants who have been successful will be asked to tell experiences.

The dealer who comes to this convention will be told the basic principles of all good business in such a way that he will never forget them. He is to be told how to plow the soil deeper; how to determine the wants of his customer and how to meet them with the product on his floor. He will be told how to make a sale without cutting the price; he will be told how to keep his customer satisfied after the sale is made, which means keeping the balance on the right side of his own ledger. He will have emphasized for him the importance of keeping his salesroom orderly and attractive. He will be told how to follow up systems that have proven successful for other dealers. He will have the opportunity of discussing with the greatest men in the country his own individual problems.

The dealer will be told that the days of passing out advertising copy to solicitors is past. The friendship ceases when the expense begins. He will be told how to pick mediums, and how to eliminate personal prejudice in the selection of mediums. He will be made to understand that advertising copy can never accomplish more than the bringing of the prospect on his sales floor, and that the placing of an advertisement is a useless effort unless he is equipped to follow it up with practical salesmanship.

Not only has the gasoline pleasure vehicle branch of the motor car game been interested in the project, but the commercial and the electric veins of the industry have been active.

The convention will be held in the Auditorium of the Claypool Hotel. The plans call for business throughout, but arrangements will be made for those who desire morning diversion to visit the Speedway and other places of interest in the city.

Business sessions are scheduled for both October 8 and 9 with a Speedway dinner on the evening of October 8.

Wilbur D. Nesbit, of Chicago, has accepted the post of permanent chairman, which promises real interesting fun.

On the speakers' program are John G. Jones, of the Alexander Hamilton Institute, New York—topic, "Headwork in Salesmanship."

T. J. Zimmerman, *Opportunity Magazine*, Chicago—"The Opportunity of the Automobile Dealer."

J. J. Cole, President Cole Motor Car Company—"Why I Thought of a National Salesmanship and Advertising Convention."

H. O. Smith, Premier Motor Car Company—"Welcoming Address on Behalf of Indianapolis Manufacturers."

Advertising Director Leroy Pelletier, Flanders interests, Detroit—"The Co-ordination of Advertising and Sales."

John Lee Mahin, Mahin Advertising Company, Chicago—"How to Use Advertising in the Retail Game."

Elbert Hubbard, East Aurora, New York—"Ideal Salesmanship."

B. F. Lawrence, *Indianapolis Star*—"How to Get the Co-Operation of Your Local Newspapers."

Ex-Mayor Chas. A. Bookwalter—"Business Methods and the Motor Car."

John Wetmore, *New York Evening Mail*—"How to Spend Your Advertising Appropriation."

Herbert Kaufman and Samuel Blythe are also expected to be here and give inimitable talks. N. H. Van Sicklen, president of the Chicago Motor Club, has already stated he will be present at the convention.

Ward Buys King Assets for $41,000

Artemus Ward, of the advertising firm of Ward & Gow, New York City, has purchased the assets of the defunct King Motor Car Company for $41,000 and will continue the factory indefinitely. His bid was accepted by the United States District Court, receiver, the Union Trust Company of Detroit, last Saturday and the consummation of the agreement means that the creditors of the company will receive about 12 cents on the dollar.

Mr. Ward is the heaviest creditor of the company, having loaned it $100,000 in cash and also has an unsettled claim for advertising against the concern amounting to about $29,000.

The action of Mr. Ward was due to his desire to protect his investment and the determination to continue the company, at least for the present, means that the 219 cars, partially completed and represented by unassembled material and parts will be finished and marketed in the near future.

When the first appeal to the courts was made concerning the affairs of the company, it was found that in order to continue the manufacturing as contemplated by Mr. Ward would require material, parts and money to the extent of $175,000. This did not appeal to the accessory men and the field was left open to Mr. Ward to take the initiative.

The history of the King company has been stormy. The car in its present shape is well regarded in its class but it represents a tremendous number of expensive changes in the original plans. The blue prints show, according to financial experts who have inspected them, that 211 mechanical changes were made from the time the original drawings were completed until they represented the current model.

These changes cost much money and the company found itself with insufficient capital to carry its plan through to a successful termination.

While Mr. Ward declined to forecast anything but the immediate future of the company, it is understood that the organization will be kept together for a considerable period and if the operations prove as successful as expected, that a permanent organization will be effected to continue the manufacture of automobiles, probably under the same name.

Receiver Appointed for Ohio Company

CINCINNATI, O., Sept. 26—Edward G. Schultz was appointed receiver of the Ohio Motor Car Company yesterday. The company is engaged in the manufacture of automobiles at Carthage, O. The suit for a receiver was brought by the Diamond Rubber Company, a creditor on a promissory note for $6,000 which was due on September 15, 1912, but on which payment has been refused. One of the allegations of the plaintiff is that it believes irreconcilable differences exist between C. F. Pratt, president, A. E. Schafer, vice-president, who are in active control of the business, and the officers of the company, and that, unless harmony is restored, the assets will be wasted and reduced in value. The assets of the company are believed to be at least $200,000 in excess of liabilities.

Forty-Nine Experts at Sales Convention

Thirty-Six Companies Represented at First Meeting of Sales Managers of the Automobile Board of Trade

To Meet Again in Three Months—J. S. Marvin Speaks on Freight and Shipping

ONE of the largest and most important gatherings of the sales representatives of the automobile industry was concluded Tuesday when the first sales managers' convention of the Automobile Board of Trade adjourned to meet again in about 3 months. There were thirty-six of the leading companies represented by a total of forty-nine sales experts.

The program of addresses included the following:

Freight and Shipping—James S. Marvin, Traffic Manager, N. A. A. M.

Selling and Advertising—J. G. Monihan, Premier Motor Manufacturing Company.

Motor Car Equipment—George E. Daniels, Oakland Motor Car Company, and C. S. Jameson, Willys-Overland Company.

Territory and Selling Rights—Alfred Reeves, Maxwell-Briscoe Motor Company.

Annual Models—Charles W. Mears, Winton Motor Carriage Company, and S. D. Waldon, Packard Motor Car Company.

Enclosed and Semi-enclosed Bodies—H. O. Smith, Premier Motor Manufacturing Company.

The committee in charge of the convention consisted of the following: H. O. Smith, chairman; E. C. Howard, William E. Metzger, C. W. Churchill and W. T. White.

The Monday session had for its presiding officer William E. Metzger, who occupied the chair until the arrival of Chairman Smith. The liveliest and most intimate discussion attended the presentation of the various papers and the conclusion of those who attended the meeting was that it was one of the most valuable conferences ever held in the industry.

Mr. Marvin's presentation of the subject assigned to him was probably the paper of most general interest to the industry and following is the full text.

When your chairman first requested me to prepare a paper on freight and shipping, I felt that I had been assigned a *task*, but I quickly realized that instead of a task, I had been granted a privilege, for there is much in connection with the shipment of automobiles and the prompt and economical handling of same that is of direct interest to the dealers with whom you are constantly in touch. I am, therefore, glad of this opportunity to bring to the attention of the sales managers some of the points involved in this automobile traffic question which, for reasons which I will attempt to explain, is an unusual one in many respects.

In producing a manufactured article, there is first the purchase of materials to be considered and the question of having them arrive at the factory at the time required. This is a matter for the purchasing department. Working the raw materials into completed articles is the task of the manufacturing department, and when that is finished, the sales department becomes responsible. The handling of finished articles from the factory to the customer is, therefore, of particular interest to the sales manager.

Shipping might be termed the last factory process applied to manufactured articles, and it is important that this be properly done, otherwise the efforts of the best organized factory can be marred.

The manufacturer strives to produce an article that will please his trade. There are few, if any, manufactured articles which call for a greater variety of detail than automobiles. From the time each particular model is conceived in the drafting room and in the minds of the management until it reaches the shipping department, consideration must be given to the purchase of a great variety of materials and the workmanship to be applied on them. The article, when completed, is one that can be seriously damaged if turned over to an incompetent shipping department. The problem of the manufacturing department is to produce an article consisting of a powerful and flexible engine combined with strong and accurate machinery and the whole combined into a road vehicle graceful in appearance and of the highest finish that painters can give it.

All this the customers expect, and when it is realized that the entire output is turned over finally to the shipping department, whose task it is to arrange for its safe transportation to all parts of the country, over the speediest routes and at the lowest possible cost, the task of the shipping department is better appreciated. Careless loading, resulting in a chafed tire or a scratched body, will do much to make a bad impression on the consignee, and all the care with which each department of the factory has followed this particular car to its completion with the intention of pleasing him to the utmost, will, in a large measure, lose its desired effect. Or if through inefficiency or clerical errors the freight bill is one hundred dollars, whereas the consignee knows the shipment could have been made for seventy-five dollars; or if the freight car arrives on a railroad whose freight station is a mile or two from the consignee's place of business, whereas it could just as well have been shipped over a road with a nearby freight delivery; or if, instead of arriving within the usual time of perhaps three days, a week passes, and the consignee learns that the shipment is blockaded at some congested point, which a well-informed shipping department might have avoided, then the freight and shipping department of that particular factory has failed to do its work as well as the other departments, and this last function of the factory in its dealing with the customer has, to a certain extent at least, spoiled the good work of the other departments.

This question of transportation is, perhaps, the oldest of all business subjects, and the problem of shipping promptly, safely and economically has been before the people from the days of primitive methods, and it is a self-evident fact that were it not for the great improvements that have been made in this feature of our industrial system, our manufacturing resources could not have been developed to the point they have reached. Nothing illustrates this better than the periods which at times occur when, for some reason or other, the arteries of commerce become clogged. The impossibility of conducting business without suitable methods of transportation are then at once apparent to the manufacturer, who finds his goods indefinitely delayed, and to the dealers, whose customers are demanding delivery and perhaps cancelling orders which these delays render him helpless to fill.

A new device which is a source of wonder today becomes an article of common use tomorrow. So it is with transportation. A few years ago, where a manufacturer at one point and his dealer at another were accustomed to a week's time in transportation of the manufacturer's goods, improved methods of railroading have reduced the handling of freight between these points to perhaps the second morning delivery, and they arrive with fair regularity on this schedule. Both manufacturer and dealer naturally time their orders and tune their business up to this schedule, and chaos results when it is interfered with.

We all know that the automobile, as has been the case with other inventions, had a rapid development from being a new sort of toy to an article almost indispensable, and it has entered very largely and is destined to take an increasing part in the solution of this very question of transportation. Nevertheless, the manufacture of automobiles on a large scale in this country presented a new problem in transportation and one which rendered the task of the shipping department much more difficult than it would have been ordinarily. Most manufactured articles are packed for shipment, but it was apparent at the start that this could not be the case with automobiles.

The first problem, therefore, that presented itself to the shipping department was how to fasten an article on rubber-tired wheels into a freight car so that the tires and finish would not be damaged and the automobile would remain stationary in the car. This problem was quickly followed by another one much more serious, for while a suitable method of blocking was learned after a little experience, the increasing size of automobiles rendered it impossible to load them into ordinary box cars; so here was an article of very high finish, which made shipping on open cars out of the question, but could not very well be packed for shipment, about to be produced in very large quantities, and therefore unable to use the arteries of commerce so far as they had at that time been developed to suit the requirements of other industries. These facts had to be laid vigorously before railroad officials throughout the country, and the objections that some of them made at that time to meeting this situation in the only way that it could be met, are interesting. Box cars in those days were equipped with side doors from five to six feet in width and directly opposite each other. To give the automobile industry transportation facilities, it was necessary to get railroad officials to build cars with doors on an entirely different principle. To do this the traffic officials of railroads had to be convinced first of the necessity of such new cars. It must be remembered that in those days the possibilities of the automobile were not freely admitted in all quarters, and some traffic officials were skeptical; they hesitated to recommend a radical departure in the design of freight cars, especially when they found their mechanical departments strongly opposed to it. Some traffic officials held the opinion that their tonnage in automobiles would be temporary and that, instead of increasing, it would decline; comparisons with the bicycle business were made. A great point was made by them with respect to grain, which they insisted could not be handled in box cars having doors wider than six feet. Officers of the mechanical departments of railroads insisted that freight cars would be so weakened by wide side doors that they could not handle the usual loads of other freight.

In the meantime, the automobile industry was getting along as best it could by using box cars having end doors, a limited number of which had been built up to that time, for shipments of large-sized horse-drawn vehicles. The railroad people gradually revised their views on these points, and one road after another, in building new box cars, provided them with doors suitable for handling automobiles. As the extent of this shipping became more and more evident, increasing numbers of such cars were built, until to-day there are something like 50,000 box cars in service known as automobile cars. The total box car equipment of all the railroads in the country is over 1,000,000, and as the distribution of automobiles from the factories requires that shipments be made to all parts of the United States and into Canada and Mexico, these 50,000 automobile cars become widely scattered and disseminated among box cars of other kinds.

When the building of freight cars with wide doors was brought about through the requirements of the automobile industry, it was soon found that cars of this sort were not only available for handling almost any other kind of freight, but were sought after by shippers of other commodities. An eastern road building a thousand cars of this kind would soon find them scattered all over the country, so that only a small portion would be on their home rails at any one time.

Notwithstanding the rules of the American Railway Association with respect to returning freight equipment to its home rails and the urgent demands of the roads owning the cars, there are times when automobile factories' requirements cannot be met as promptly as desired. The supply of cars generally may be fairly good, but the automobile shipper cannot participate in the general supply and is confined to this particular kind of car, which is the principal thing that renders his task difficult in getting completed machines away from the factory. The problem of providing proper service for these shipments is, of course, one for the railroads. Shippers can have no direct control over the interchange of cars between the different lines. Nevertheless, shippers should, in their own interests, see that they do nothing to make this task unnecessarily difficult for the carriers. A serious shortage of automobile cars occurred last winter at some points, and when we urged the railroads to extra efforts in supplying this demand, we were met with the response that while they would do their best, it would help matters if the practice of using automobile freight cars for storage purposes was discontinued. They made the point that factories should not continue to ship to dealers who did not accept their drafts and take up shipments and thus cause an accumulation of loaded automobile

cars at that point. This is a matter in which the sales departments can perhaps render valuable aid.

The purchasing departments can help by requesting shippers of material to use automobile cars for their shipments of material to auto factories so far as possible, instead of ordinary cars; this brings to the automobile factory a car that it can use as soon as unloaded for shipping automobiles, and it makes all of the traffic more desirable to the railroads by reducing the hauling of empty cars to automobile factories. We believe the sales departments can also render assistance by getting their dealers to frequently remind the local agents of the railroads handling their business and enjoying their patronage, that these automobile freight cars when made empty should be given the particular attention of the local freight agent and furnished with a new load destined to a point in automobile shipping territory. This relates particularly to dealers in the West and South. The pressure on the local freight agents for freight cars is, of course, very strong at times, and it is undoubtedly the action of freight agents in the West and South in permitting automobile cars to be re-loaded out of line with the service for which they are intended that accounts for the difficulty in getting automobile cars owned by eastern lines returned from their western and southern connections.

This would be a good time to agitate this matter with dealers. The shipping season is starting and the local freight agents, if this matter is brought to their attention by dealers, will take some notice of it because, if they do not, they will fear the loss of patronage, and if a dealer really took sufficient interest in this matter he could probably get his freight agent to report to him the disposition made of each of these cars after it is unloaded. If a freight agent, for instance, in the Northwest, permits a local shipper to load one of these cars to a point in Texas, the automobile industry will get no service from that car perhaps for months. A freight agent who permits this would not do so if he felt that the automobile dealer was still interested in that freight car and wanted to know that it had been loaded back to the automobile manufacturing territory.

In the beginning I made reference to the possibility of clerical errors resulting in freight charges exceeding what the dealer anticipated. The freight rates and rules governing the charges on automobiles are such as to readily admit of errors on the part of railroad billing clerks, whereby excess freight charges are collected from consignees. We have endeavored in every possible way to overcome this. The National Association offers the use of its traffic department to its members and their dealers, without charge; all the factory or dealer has to do is to send their receipted freight bills to us, each one of which is examined, and if any overcharge exists the money is collected and remitted. We believe that you could render your dealers a great service and one which they would appreciate later on, if you could impress upon them the necessity of having every dollar that they pay in freights properly audited. They can do this by communicating direct with us or through the factories, which in turn can communicate with us to whatever extent is necessary; but, in any event, the immense amount paid annually for the transportation of automobiles should be scrutinized carefully by those who are efficient in that work. The railroads do not intentionally make these overcharges. They occur entirely through clerical errors and are readily corrected when brought to the attention of railroad officials. It takes only a hasty estimate to indicate the amount of money involved in this question. The approximate annual shipment of automobiles is one hundred thousand carloads. These shipments are subjected, of course, to freight charges varying from $30.00 or $40.00 per car up to $400.00 or more. The charge on a 36-foot car from Detroit to New York is $64.50. If that figure is taken as representative of an average haul, the total freight paid would be six and one-half million dollars. This freight is paid at destination, and a large proportion of the several thousand dealers involved do not know whether their freight bills are correct or not. It is absolutely certain that such an amount of money cannot be paid in freights without a good many thousands of dollars occurring in overcharges. The billing of freight is done by clerks in local freight offices who receive memorandums of what has been shipped, and they make out the way bills, applying the rates which, in their opinion, are correct; all this is done in more or less of a rush, and there are naturally frequent changes in the clerical staffs. No one concern paying out large amounts for transportation would think of letting it go unchecked, but in the case of this automobile item it is scattered. Then there are the changes in freight rates and classifications. The clerk in the local freight office is billing all kinds of freight; one bill is for a carload of automobiles, the next is for a carload of lumber, the next one is perhaps for a box of shoes, etc.; each one he must rate. When a new classification or freight tariff, containing several hundred pages, comes out, he is very likely to overlook some change and thus cause an overcharge in the freight bill. These changes may consist of only a word or two in the language of a classification item, the significance of which does not impress him, but it is at once apparent and in fact was probably brought about by the shipper of that particular article. For example, when we succeeded in getting trucks rated separately from passenger vehicles in the Official Classification, it is a certainty that many a freight bill was paid for excessive charges which were never refunded. Instead of the new classification reading "Vehicles, self-propelling, including automobiles and automobile chassis," it was changed to read "Vehicles, self-propelling, including automobiles," and separate items were installed covering automobile chassis and self-propelling freight delivery wagons or trucks. Notwithstanding our advices to the factories covering these changes, we found that chassis were, in some instances, described on bills of lading as automobiles, and they were accordingly charged a higher freight rate than they were entitled to. We also suggested that factories notify their dealers particularly regarding this important change and that all freight bills be checked either by the factories or by sending them direct to the National Association's Traffic Department. We did not get very much response in the way of direct inquiries from dealers regarding the freight bills, but to indicate the possibilities of overcharge on an item of this kind I can mention an instance of one factory which followed the matter up and urged its dealers to send us their freight bills; we heard from nineteen of that factory's dealers and out of the bills received from them presented overcharge claims for $1,066.97. Another factory sent us seven bills and we found four of them overcharged on this point.

Another rule of the Classification that has a very important bearing on the proper freight charge on automobile shipments relates to the size of car ordered by the shipper as compared with the size of car furnished by the railroads. One western dealer sent us some freight bills covering a considerable period of his shipments, and we found on examination that he was overcharged $753.84 on this question of minimum weight applicable to the cars of different sizes.

It is very apparent that the sales departments would render a valuable service to their dealers if they can be made to understand the advantage of having their freight bills audited regularly in this manner.

There are two phases of this question of transportation of automobiles; one pertains to service and the other to the cost of the service. I have endeavored to bring to your attention some of the points in connection with both which I thought would be of particular interest to the sales managers, and which, if kept in mind by you in your dealings with agents and branches, would result in benefit to the industry in getting machines handled promptly and at the lowest possible cost, from the factories, and I want to add that the traffic department of the National Association of Automobile Manufacturers is always at the service of the factories and your dealers in these matters.

Those present included the following:

Auburn Automobile Company	J. I. Farley
Autocar Company	H. M. Coale
Cadillac Motor Car Company	A. C. Howard
Cartercar Company	H. R. Radford
	W. S. Williamson
Chalmers Motor Company	Percy Owen
Jas. Cunningham Son & Company	J. W. Fulreader
Columbia Motor Car Company	F. K. Dayton
Flanders Motor Company	William E. Metzger
Hudson Motor Car Company	R. B. Jackson
	E. C. Morse
	R. D. Chafin
	C. C. Winningham
International Motor Company	H. D. Watson
Knox Automobile Company	H. K. Sutherland
Locomobile Company of America	J. T. Roache
Lozier Motor Company	C. E. Emise
Maxwell-Briscoe Motor Company	Alfred Reeves
Mercer Automobile Company	W. T. White
	E. H. Sherwood
Mitchell-Lewis Motor Company	Leo A. Piel
	J. M. Cram
Moline Automobile Company	C. H. VanDervoort
	Rufus Walker, Jr.
Moon Motor Car Company	W. J. Coglan
	E. J. Moon
Matheson Automobile Company	F. F. Matheson
National Motor Vehicle Company	J. M. Clarke
Nordyke & Marmon Company	Herbert H. Rice
Oakland Motor Car Company	J. B. Fecleston
Packard Motor Car Company	S. D. Waldon
	H. H. Hills
Paige-Detroit Motor Car Company	Jas. F. Bourquin
	H. Krohn
Peerless Motor Car Company	R. S. Schmunk
Pierce-Arrow Motor Car Company	J. Elmer Pratt
Premier Motor Mfg. Company	H. O. Smith
	John Guy Monihan
Alden Sampson Mfg. Company	M. C. Reeves
Selden Motor Vehicle Company	James Joyce
S. G. V. Company	F. F. Weston
F. B. Stearns Company	R. H. Williams
Stevens-Duryea Company	H. C. Beaver
E. R. Thomas Motor Car Company	C. S. Henshaw
	J. E. Quimby
The White Company	Walter C. White
Willys-Overland Company	C. S. Jameson
Winton Motor Carriage Company	C. W. Churchill
	Chas. W. Mears

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New Companies in Hoosierdom

INDIANAPOLIS, IND., Sept. 23—With several new companies being organized and old concerns enlarging their plants, together with agency changes, the 1913 season is starting out in a brisk manner in this city.

The H. J. Martin Forging Company has just acquired another tract of ground adjoining its plant and will erect an additional building at once to cost $50,000. The company manufactures motor car steel forgings. A factory branch, service station and repair shop has been opened by the Eisemann Magneto Company with Lon R. Smith, western representative of the company, as manager.

With an authorized capitalization of $20,000, the Glover Equipment Company has been organized and incorporated to manufacture motor car tops, dust hoods and seat covers. F. L. Glover, formerly with the R. J. Irvin Manufacturing Company, is president and general manager.

Another new company is the Auto Finishing and Wonder Polishing Company, incorporated with $50,000 capital to manufacture motor car polish. J. W. Cummings and J. J. Sheehan, of this city, and N. S. Tedrow, of Des Moines, Iowa, are interested in the concern.

The Archey-Atkins company has arranged to distribute the truck made by the Brown Commercial Car Company, of Peru, in central Indiana. The Brown company will have an office with the concern. F. N. Martindale has bought at receiver's sale the property of the Indianapolis Auto Top and Rubber Company for $700 and will continue the business.

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PHILADELPHIA, PA., Sept. 30—By a decision handed down today by Judge Thompson in the United States District Court, the Penn Auto Supply Company was adjudged bankrupt and John V. Harrigan and Hugh B. Turner appointed receivers, with authority to carry on the business of the concern until further orders from the court.

Security was fixed at $10,000.

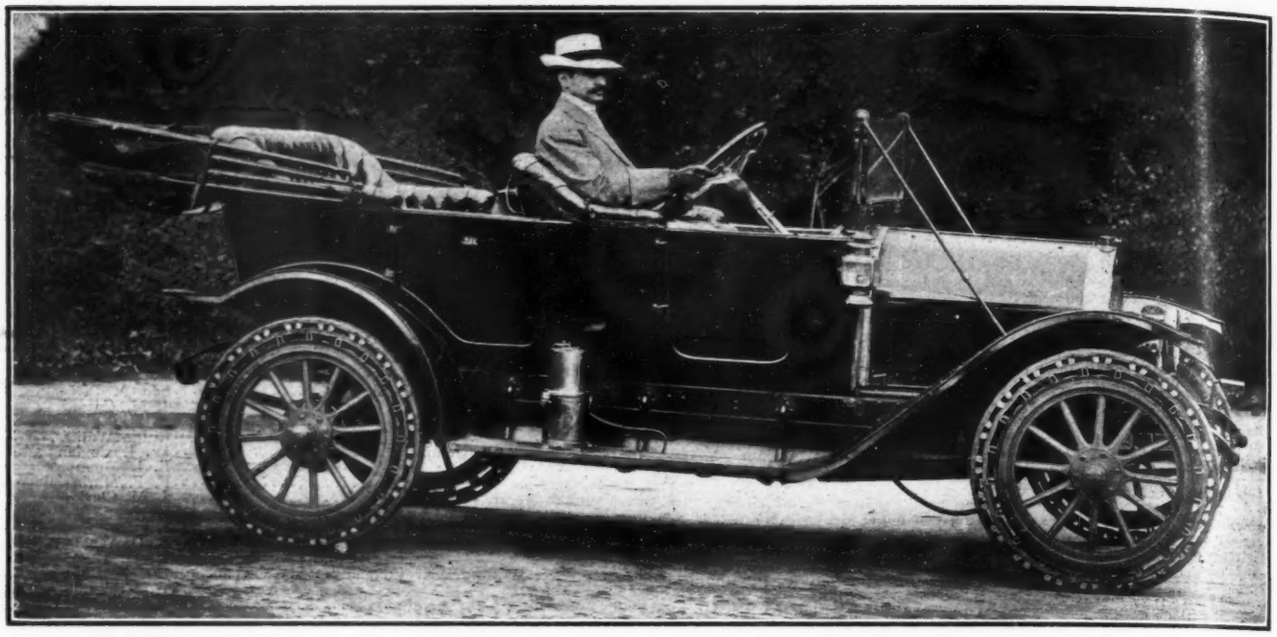

Fig. 1—Ethelbert Favary in Overland car equipped with his patent mechanical tire. Note the action of the bands of the right rear wheel in taking up the shock of the stone

S. A. E. Considers Tire Possibilities

Metropolitan Section Hears Interesting Talk on Favary Tire and Various Fillers Are Discussed

THE first meeting of the Metropolitan section of the Society of Automobile Engineers was held September 26, at the United States Rubber building. The topic of the evening was substitutes for pneumatic tires. An interesting session was held, the greater part being devoted to a paper by Ethelbert Favary who has invented a very novel and ingenious form of non-pneumatic tire. After Mr. Favary had answered with dispatch the various questions put to him, O. A. Parker dwelt upon the virtues of Newmastic, a tire filler, and Mr. Phelps of the Zilio company also touched upon the requirements of a successful filler. A part of Mr. Favary's paper follows:

While pneumatic tires have contributed in very large measure to the rapid development of the automobile, nevertheless at the present day pneumatic tires offer a great drawback to motoring, through expense, breakdowns, etc.

Two different principles have been employed in the construction of the tires in general use today, viz.: pneumatic and solid rubber. Besides these, tires embodying springs of a great number of varieties have been experimented with, without success, for reasons well known to those familiar with the art. The different types of tires relying on rubber compositions, rubber fillings, or solid rubber in conjunction with air at atmospheric pressure may all be classified as solid rubber tires, since they rely on the elastic efficiency of rubber as the resilient medium. As is well known, this elastic efficiency is very poor. A simple experiment with a block of rubber will demonstrate this fact quickly. When placing a load or weight on a block of rubber, the depression to the point of rest will not be instantaneous, nor will it reach this point nearly as rapidly as a spring or pneumatic cushion. When the load is removed the last two mentioned will resume their former position immediately, while in the case of the rubber block some time will pass before it resumes its former shape, since rubber changes its form under compression.

Power will be consumed by a rubber tire, since the effect is analogous to running up a grade or in deep sand or mud; there is a resistance against the forward motion, it being necessary to compress the rubber in front up to the central axis, whereas with a good resilient medium the counter-pressure behind the axis is approximately equal to the pressure in front of it. The amount of power wasted will depend on the "give" of the rubber, the quality of the rubber and the speed of rotation of the tire. But apart from the power consumption, vibrations are set up on account of the slowness of the "give" of the rubber, and the greater the speed of travel the greater the rate of vibration set up. Hence for fast travel solid rubber tires are impracticable.

The primary desideratum in a tire is a deformable, accommodating outer periphery, capable of absorbing obstructions on the road without raising the axle; this will eliminate road shocks and vibrations, and therefore greatly increase the life of the machine. The second desirable quality is a good resilient medium which will not waste the power of the engine. The third quality (the most important from the passenger's standpoint) is reliability, which includes economy. While the pneumatic tire fulfills the first two requirements fairly well, the third has been the bane of the motorist's existence.

In the tire to be described a purely mechanical principle is employed whereby resilience is obtained by the flex action of a combination embodying pliable bands under tension.

The bands A and B (Fig. 3) are composed of extra strong belting or fabric, especially woven and waterproofed for the tire. C, D and E are aluminum blocks attached to the bands with tubular steel rivets. The large heads of the rivets rest on the bands and their tubular section is opened on the aluminum blocks. There is no friction in any part of the tire between the blocks or the fabric, they being solidly riveted together. F (Fig. 2) shows small aluminum blocks attached to the canvas of the tread, fitting the blocks C when assembled upon the tire.

The tread is detachable from the tire proper, for the purpose of renewal. The blocks F are riveted to the canvas band of the tread, neither rivets nor blocks resting on the rubber, thus eliminating wear or friction in any part of the tread except on the outer surface contacting with the ground. G, Fig. 5, shows the bottom blocks shaped to fit the blocks E, holding them se-

curely against any displacement. Fig 4 shows how the bottom blocks are removed to demount the tire from the wheel. When all the blocks are in position, and the tire is assembled on the wheel, the bands are under great tension and pressure, blocks E being pressed into blocks G, holding the tire securely on the wheel.

The tire is purely mechanical in both construction and operation. The operation is as follows: Immediately under an applied load the bands dip downward, while adjacent thereto there is an upward movement due to the increased tension of the bands.

With 1,000 pounds on a rear wheel the weight of the car will be about 3,500 pounds. For such a car we employ a 4½-inch tire, and the tensile strength of the band would be about 30,000 pounds. The blocks under the second band very seldom carry the entire load, as in practice they are proportionately closer together and the load therefore rests in part on more than one block; this will also tend to reduce the result by at least 25 per cent., so that the above value should be about 1,500 pounds. It will be seen that the factor of safety is amply sufficient, even when hitting stones at high speeds.

When traveling over bad roads the tires should be softer comparatively for maximum efficiency. Theoretically the degree of resiliency should be such as to absorb obstructions of the average height encountered on the road. Thus tires should be harder on smooth roads and softer on rough roads. In the tire described the tension may be adjusted correctly to meet these requirements. With pneumatic tires the exact reverse is true; on rough roads they must be relatively hard in order to prevent rim cuts. Every motorist knows the effect of traveling over bad roads with hard tires; the vibrations and shocks are bound to increase bills for repairs to the machine. In addition all these shocks and vibrations mean wasted energy.

Fig. 4 shows the tools in position for removing the blocks, after which the tire may be easily slipped off the rim. This being done, the tread may be removed by hand from the tire proper by alternately raising one side of the consecutive blocks and then pulling slightly sidewise. Thus, when the tire is running at high speed the tread will not be raised away from the tire proper by centrifugal action on account of the two halves of the top blocks interlocking. The two levers shown in Fig. 4 (the only tools required with the tire) are also used for tensioning the bands, to make the tire hard or soft or in taking up any slight stretch which may develop after several thousand miles. This tension is accomplished by the insertion of a thin aluminum shim under every second bottom block and under every block subsequently.

While the factor of safety in the bands is high as regards their tensile strength with relation to the tension they carry under load, still when using ordinary belting where the warp threads cross one another, there may be a certain amount of stretch. To overcome this a specially woven fabric is employed having the warp threads absolutely straight in pockets surrounded by thin weft threads. This fabric has been found to satisfy all requirements.

During the early period of development the tires were covered at the sides with a thin canvas and rubber coating, making them in appearance very similar to a pneumatic. This was found unnecessary, however, since centrifugal force prevents any dirt or stones entering the apertures in the tire. When packed by hand with clay and cement and allowed to dry, immediately the tire was in action it rid itself of all foreign substances.

On account of the peculiar construction of the tire, it having no lateral "give," skidding is reduced to a minimum, as compared with a pneumatic, in the case of which the lateral "give" exceeds in magnitude the vertical depression

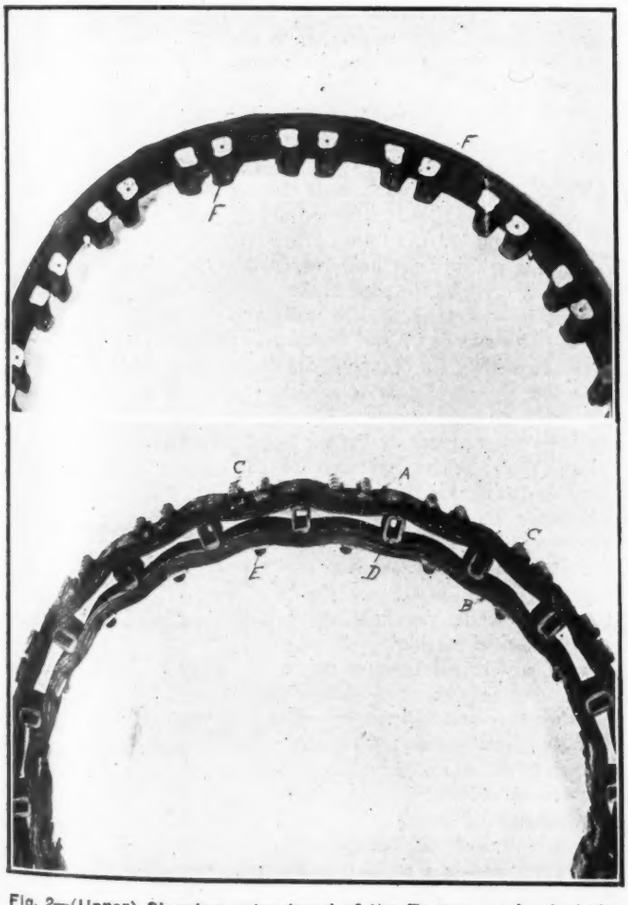

Fig. 2—(Upper) Showing outer tread of the Favary mechanical tire
Fig. 3—(Lower) Favary tire with outer tread removed

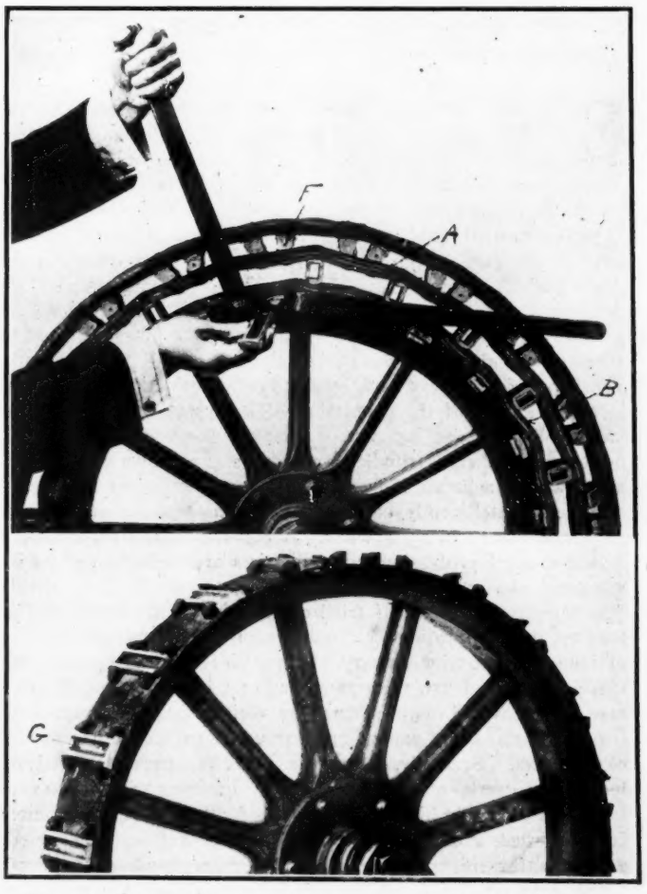

Fig. 4—(Upper) With side flanges removed, showing tire irons
Fig. 5—(Lower) View of rim with bottom blocks in position

Digest of the Leading Foreign Journals

New Alliance of Speed and Competence in Hygiene—Differentials Still Developing—A Clutch With Minimum Inertia—Starting Motors With Their Own Gas—Cutting Mystery Out of Casehardening—Rise of Two-Cycle Design

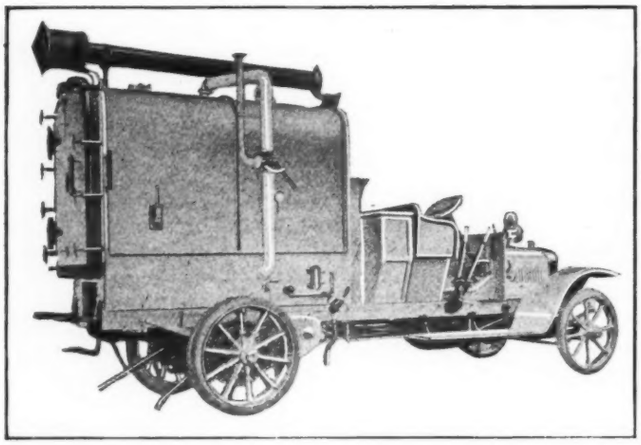

Fig. 1—Disinfector-car proposed for German sanitation districts

SANITATION Centralized by Motor Power—At the recent hygienic exhibition in Dresden, Germany a large number of physicians inspected the disinfector-car whose outward appearance is shown in Fig. 5. It was built at the Benz-Gaggenau works and designed on the basis of the experience of a Dr. Otto, who for more than 1 year has used automobiles for expediting and cheapening the work of disinfection which becomes necessary in the case of contagious and infectious diseases. Sanitation of this order has become more urgent in Germany of late years by reason of the large numbers of foreign agricultural workers who migrate to and from the rural districts twice a year and, generally by reason of the much-increased travel of the population. The system heretofore used has involved the employment of a large number of persons, each of whom, as a rule, trundled or drove a car with a small apparatus within a small radius of action and more or less accurately and intelligently carried out the instructions given them all for guidance in their work. According to the reform plan of the medical profession, large districts are to be placed under a central sanitary administration and motor power is to enable few persons, and these of tried competence in the work, to follow up the notifications received from physicians quickly and at long distance if necessary. The disinfecting is to comprise two processes. First, the nurses or caretakers in a case of disease are provided with means for disinfecting the immediate surroundings of the patient as thoroughly as the nature of the case allows. Secondly, after the case has been disposed of locally, by death, removal or recovery of the patient, complete sterilization of clothing, rooms and of all objects which have been exposed, even remotely, to the infection, is to be effected, and it is for this process that the disinfector-car is required. Some data on the feasibility of the proposition are available. In the lower department of the Seine, in France, thirteen public disinfecting establishments were until recently in operation, Dr. Otto states, and now, thanks to the use of motor power, all the work done at these places and by emissaries from them is taken care of by five disinfectors and one inspector. One of the disinfectors has charge of the final work after each case and has at his disposal a 9-horsepower Dion-Bouton vehicle with a spacious fumigation chamber, while the other four have each a motorcycle carrier with the necessary apparatus for attending to the cases which are in progress. By means of the car it has been possible to effect five thorough disinfections in 2 days at distances involving in all 260 kilometers of travel. During the year 2,550 visits and disinfections were made. The expenses for 1 year for the whole system are given as follows:

Gasoline, lubricating oil and taxes	$590
Operation of garage	192
Repairs and tires of motor car	660
Repairs and tires of five motorcycles	508

Adding to these items the wages, rent, insurance, etc., it is calculated that the cost per capita of the district, which, however, is a metropolitan one, comprising a portion of Paris and suburbs, comes to 1 1-4 cents per year.—From *Automobil-Betrieb,* middle of September.

IMPROVED Shaft-Drive Differential—The demand for a considerable speed reduction at the point where the rotation of the driving shaft is transformed into rotation of the two rear wheel shafts has been held responsible for the introduction of the worm drive on the ground that the size of a bevel gear crown cannot be increased in size without reducing the road clearance. The silence of the worm gear was an incidental advantage. A method for obtaining the desired gear reduction by compounding the bevel gear—placed in front of the rear axle—with a spur gear to the differential casing has long been in use. Other methods adopted largely for the same purpose involve the use of wheel-driving shafts separated from the rear axle and of a spur gear on the brake drum of each wheel. With the rotary speed of motor shafts higher than it ever was before, the greater gear reduction becomes desirable not only for trucks but also for pleasure cars, while the heat treatment and final machining of large bevel gear crowns remains onerous and expensive, and designers are therefore seeking new expedients in those cases where the adoption of worm drive is not considered advisable. In THE AUTOMOBILE of June 13 the new differential used in one of the Mercedes models was illustrated and described. The opportunity which this design offers for in-

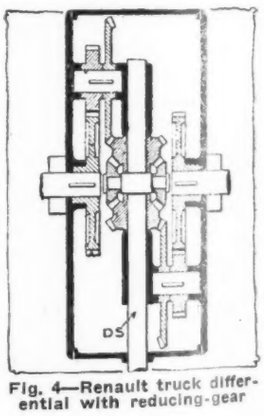

Fig. 4—Renault truck differential with reducing-gear

creased gear reduction is mainly based upon the division of stresses between two bevel gear crowns, so that the gear teeth and therefore also the diameter of the crowns may be made smaller. In the construction recently put forth by Louis Renault and shown in Fig. 3 this feature of the Mercedes design, including the prolongation of the driving shaft DS, is coupled with a further reduction of gear effected by two pairs of spur gears. By this arrangement end thrust on the wheel shafts is also avoided.—From illustration in *Automobil-Welt*, September 13.

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PANHARD Clutch and Change-Gear—The clutch and change-gear of the Panhard 15-horsepower car with Knight motor, three-point suspension and unit construction are shown in Figs. 1 and 2, giving respectively a vertical and a horizontal cross-section of these parts. The clutch is said to work with remarkable sweetness and, by virtue of its small weight, stores up very little momentum. It is entirely inclosed in the motor flywheel which is formed of two plates, hollowed out and joined by screws. At the center is the clutch shaft which is joined to the primary shaft of the gear box by a cylindrical boss with six rifles. The clutch shaft carries a steel disk to which is riveted a fiber ring F. A movable ring P2 is placed in the flywheel and can be pressed against the fiber ring by means of two springs R which are placed in the hollowed part of the rear plate of the flywheel. Disengagement of the clutch is effected by six levers L which are controlled from the clutch pedal and draw the ring P2 back. While exact centering of the fiber ring is not imperative, the clutch shaft is extended into a bore in the motor shaft, the extension being provided with oil grooves. Normally this clutch operates with the clutch casing—which is the extended crankshaft casing—one-third full of oil, as a tube from the change-gear box communicates with the clutch cavity at this height, but it is said to be an advantage of the construction that it operates equally well with little and with much oil.

With regard to the change-gear box the principal features of interest are the following: The casing is bolted in front to the crankcasing as in most other unit constructions, while at the rear it is carried on a rounded sleeve fitted upon a cylindrical extension of the universal shaft housing N, which in turn is secured to a stout cross member T of the chassis. The rounded sleeve constitutes a flattened ball joint protecting the casings against stresses which might arise from torsions of the chassis. The primary and the secondary shaft are concentric for their entire length. The most exclusive feature, howevere, is the control of the gear shifters, which are three in number. It is effected by a simple forward and backward movement of the control lever without any lateral displacement. The shaft A of the lever, see Fig. 2, carries an internally toothed sector meshing with a pinion J, and the latter is secured by bolts to the same shaft which carries a cam-plate K in which are formed grooves r1 and r2 which make the shifting forks G1 and G2 slide upon the fixed guide B. The object of the toothed sector and pinion is to cause

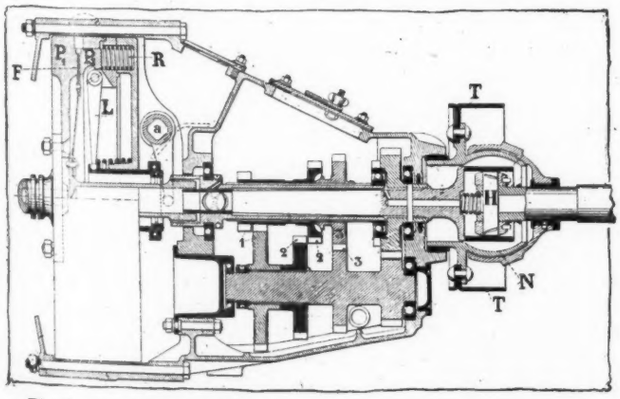

Fig. 2—Showing very light Panhard plate clutch F. in flywheel

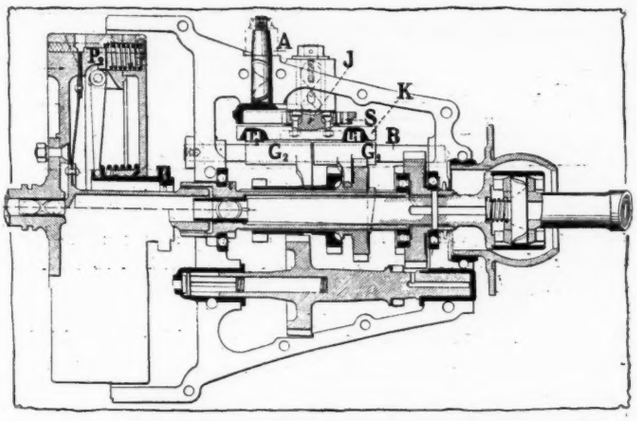

Fig. 3—Panhard change-gear with cam control of shifters

a large angular movement of the cam-plate by a small movement of the lever. As any given position of the cam-plate corresponds to only one possible position of the forks two speeds cannot get in mesh at the same time. The neutral position is double. One is back of the low speed, but a stop on the sector between the second and the third speeds provides a second one which enables the driver to start on second speed by a very short forward movement of the lever, whereafter he gets to the third by drawing the lever back, past the neutral, to third, having the same advantage in the way of short movements that is obtained by lateral displacement.—From *La Vie Automobile*, September 7.

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IMPROVED Casehardening—A general desire for reducing the casehardening process to mechanical terms, so as to make it fit better into manufacturing routine and render it independent of the personal skill of workmen, finds expression in recent patents. German patent 244,966 to Gio Ansaldo, Armstrong & Company, of Genoa, Italy, provides for the combined use of carbonaceous solids and a gas. Both the depth and the degree of hardening can be regulated by this method, it is claimed. The gas used is the anhydrous carbonic acid gas CO_2 which can be obtained cheaply and in great purity in commerce. According to the equation $CO_2 + C = 2CO$, it forms carbon monoxide by combining with the carbon in the carbonaceous solid—usually a powder—until the chemical balance is established, and carbon monoxide is the most suitable gas for carrying carbon into steel, as its use does not lead to the generation of free carbon, and the free carbon is the element mainly responsible for brittleness in the hardened surface layers of the object. According to the process, the articles are embedded in the casehardening compound, as usual, and the CO_2 gas is circulated through the receptacle of the work, being passed in, gathered and passed back again. Some time before the end of the process, the compound or powdered charcoal is removed. In order to increase the carbon content of the hardened portions, hydrocarbons may be introduced in the receptacle either in liquid or gaseous form. To reduce the carbon content, on the other hand, air may be mixed with the circulating gas. Another patent, No. 245,183, secures to the same firm the method of removing the solid carbon compound which serves to regenerate CO from CO_2, from the objects under treatment during a portion of the time, so as to become able to regulate the casehardening temperature independently of the temperature which is most suitable for the formation of CO.

Another casehardening method is secured to W. R. Hodgkinson, of Blackheath, England, by German patent No. 243,238. It consists in exposing the iron or steel to vapors formed by heating substances or compounds containing nitrogen in carbocyclical or heterocyclical combinations. A number of such substances are mentioned. Their evaporation may be effected by spraying them into the closed muffle in which the work is heated. A hardening which suffices for many purposes is obtained by exposing the

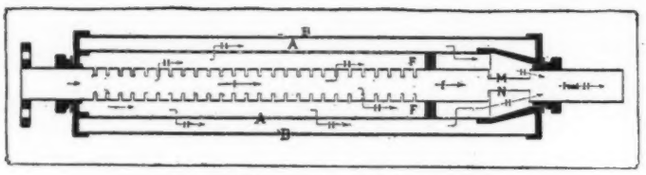

Fig. 5—Design of the Galaine muffler

metal at a temperature from 650 to 800 degrees centigrade to any one of the suitable gases for about 30 minutes.—From *Metallurgie*, August 8.

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MOTOR Starter—An arrangement for making sure of being able to start the motor of an automobile by means of the spark has been developed by Unterberg and Helmle of Germany, the same firm whose mechanical device for producing a spark from a magneto with the motor at a standstill was noted at the Berlin, Olympia and other automobile shows opening the 1912 season. The new arrangement comprises gas-collector bottles screwed by their necks one into each cylinder head, next to the spark-plug, and a shaft with three cams by the action of which two valves connecting each bottle with the interior of the respective cylinder may be opened and closed. One is a non-return conical valve held to its seat by two springs, one light and one strong, and the latter may be put out of action by one of the cams. The second and lower valve serves to shut off positively all communication between the cylinder and the gas bottle during the normal operation of the motor. The loading of the gas bottles is done while the motor is running to rest with the spark shut off; in other words, every time the motor is stopped. The control shaft of the device is then turned a little, opening the positive valve and putting the strong spring of the upper valve out of action. The compression strokes during the last turns of the motor now force ignitable mixture into the bottle, having only the resistance of the light spring to overcome, and the compression in the bottle comes by a few strokes, it is stated, somewhere near to that normally reached in the cylinder. When the motor has come to a full stop, the control shaft is turned a little more and releases the strong spring of the upper valve which effectually closes the bottle against leakage, while the lower valve is closed at the same time.

To start the motor, the two valves are opened by another turn of the shaft, allowing the gas contained in the bottle to flow into the cylinder, whereafter the two valves are closed again at once. The motor is then in condition to be started by a spark from the ignition apparatus. If the latter is a magneto suppplemented by the magneto-starter device referred to above, the shaft controlling the gas bottles is connected by a sprocket chain with the starting lever of this device. In other cases, as when the initial spark is supplied from a battery, the shaft is carried through the dashboard and is operattd with a small lever within reach of the driver.—From *Automobil-Welt*, September 8.

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SIMPLE Formulas for Coil Springs—H. Al. Siebeck publishes in *Revue de Mécanique* for May a simplified method for calculating the dimensions of coil springs with reference to the work for which they are intended. The action of a coil spring is determined by its highest admissible load and by its degree of elongation under a given load. The starting point for calculation is the degree of elongation, the value of which depends upon the load and the stroke of the spring. It contains the following elements: H, the stroke in millimeters; P_e, the final load in kilograms, which approaches more or less closely to the ultimate fiber stress, according to the number of strokes of the spring in a time unit, and P_v, the initial load in kilograms, which may be positive or negative. The useful load with these notations equals P_e minus P_v. These values determine the elongation, h, in millimeters per kilogram of load. The formula arrived at is:

$$h = H \div (P_e - P_v).$$

Experience has demonstrated that the functioning of the spring depends upon an exact choice of the elongation h.

With a given proportion $c = D \div d$, between the mean diameter, D, of a convolution and the diameter, d, of the wire itself, the ultimate fiber stress, P maximum, is obtained by the very approximate formula:

$$P = 1{,}600\, d^3 \div c.$$

The safety factor, S_f, of a spring is often calculated after the formula: $S_f = 1 + (n \div 150)$, in which n designates the number of strokes of the spring per minute.

The necessary number of convolutions, s, is figured from the formula: $s = 10{,}000\, dh \div c^3$.—From *Le Génie Civil*, August, 17.

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SPEED of Two-Cycle Motors—The success of slide and rotary valve motors in competition with four-cycle poppet valve motors is interpreted by many European automobile engineers as a development which is not only interesting in itself but which should also greatly encourage those who believe in the eventual practical triumph of the two-cycle type of motor, which was the pet of nearly all engineers in the early days and the first form of valveless gasoline engine. The good accounting which the Cote car equipped with a Cote two-cycle engine gave of itself in the recent Grand Prix race at Dieppe and in some of the subsequent racing events in which it took part—running in every instance with great regularity—has confirmed this opinion. A two-cylinder motor of this type gives, according to bench tests, its highest power at 1,380 revolutions per minute, and with 90 millimeter bore (3.6 inch) and 120 millimeter stroke (4.8 inch) this maximum is 22 horsepower. As now built the motor comprises four cylinders, however, and gives 43 horsepower. The speed can be regulated from 250 to 1,500 revolutions. The weight is 135 kilograms (300 pounds). Two smaller four-cylinder models give corresponding results. The fuel consumption is given as 14.7 kilograms for driving a two-seated car 100 kilometers over a level road, while the same work is done by a four-cylinder motor of 65 by 85 millimeters bore and stroke with only 8.4 kilograms of fuel and by one of 75 millimeters bore and 105 millimeters stroke with 11.9 kilograms. As neither the speed nor the road quality is indicated, these figures are of course not conclusive.—From *Automobil-Welt*, September 13.

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MUFFLERS Which Increase Power—Mention was made in THE AUTOMOBILE of September 5 of the Galaine muffler which had been found by tests, conducted at the laboratory of the Automobile Club of France, to increase the power of the motor to which it was applied. Fig. 4, representing a cross-section of this muffler, shows the construction which was not made quite clear in the first report from France. The partition F was not mentioned. Recapitulating, the exhaust passes through the inner tube, a portion of it expanding through the slits in it into tube A and through holes in the latter into tube B. A hollow conical body with a central passage MN contracts the exit to the atmosphere from the inner tube, increasing the speed of the gases at this point and setting up a suction, by siphon action, in that portion of tube A which lies beyond the partition F, thereby drawing the gas from both A and B as indicated by the arrows.—From *Bulletin Officiel*, August.

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TO Improve Traction of Solid Tires—Solid tires perforated with radial holes of nearly 1 inch diameter are known in the American market. A French firm, Abeil & Son, inserts a short corrugated steel tube in each of the holes of such a tire, the corrugations being formed with a saw-tooth cross-section so that the tubes can be driven farther into the rubber but cannot fall out. As soon as they reach the rim, by reason of the rubber wearing down, the lack of elasticity in the tire becomes a signal that its replacement is in order. The rings work as anti-skid rivets or better, filling up with gravel and other road material and having no tendency to eject it, as they are not in themselves elastic—From *Omnia*, September 14.

Chances for Foreign Trade

Items Culled from Consular Reports Showing Where Opportunities for Business Exist Abroad

Inquiries for Automobiles, Trucks, Motor Plows, Engines, Tools and Accessories

AUTOMOBILE Accessories—A business firm in a European country, which states that it is in a position to furnish first-class references and is now the agent for a firm handling automobile accessories, advises an American consulate that it desires to receive agencies and selling offers from American manufacturers of automobile accessories of every type, except pneumatic tires. It is especially anxious that the supplies in question shall be new to the local markets. Correspondence should be in English. File No. 9,540, Bureau of Manufactures, Washington, D. C.

Crude Oil—An American consul writes that it would interest American petroleum interests to know that a certain foreign railroad is studying the question of oil versus coal as fuel for its engines. The company will require between 3,000 and 4,000 tons of crude oil annually, if it can be demonstrated that crude oil is cheaper and more satisfactory fuel than the coal now used. The company at present pays about $9.65 a ton for coal delivered. American companies should send proposals and prices to an official named in the report, also to a consular officer who is interested in the proposition. File No. 9,542.

Motors—A report from an American consul states that he is in receipt of a communication from a business firm in his district requesting catalogs from American manufacturers of kerosene and benzine motors. Prices should be quoted c.i.f. certain city, if possible, otherwise freight rates from port of shipment to the city of destination should be given. Correspondence may be in either English or German. File No. 9,539.

Motor Tricars for England and Other Countries—An official in an American trade association has forwarded to the Bureau of Foreign and Domestic Commerce a request from a business man in England, who formerly resided in the United States, for the names of manufacturers in the United States of motor tricars and low-priced motor cars. He is said to have good connections and in the opinion of the official referred to would make a good agent for manufacturers of the articles mentioned who are not already represented in England and Scandinavian countries. File No. 9,533.

Automobiles, Motor Trucks and Parts—A New York firm reports to the Bureau of Manufactures that it has a foreign inquiry calling for a moderately priced automobile similar to a well-known American car, also motor trucks and frames equipped with motors complete. File No. 9,375.

Automobile Tires—An American consul in Mexico has transmitted the name of a person in his district who, according to an article recently published in a local paper, has improved on automobile tires. The improvement consists in a metallic construction of round wires that form an embracing piece, passing through the interior of the rubber tire and fastened by means of these wires to the iron rim of the vehicle. File No. 9,378.

Gasoline Engines—The Bureau of Manufactures is in receipt of a communication from a firm in England requesting to be placed in touch with American manufacturers of four- and six-cylinder gasoline engines for use in automobiles and trucks and engines for propelling motor boats. The firm sells a large number of gasoline engines for farm and stationary uses, and thinks there would be a good market for low-priced engines for motor cars and boats. File No. 9,377.

Automobiles—A business man in a German city requested an American consul to place him in communication with American manufacturers of automobiles with a view to represent some line in that market. Correspondence in German or Italian. File No. 9,472.

Motor Trucks—A foreign business man informs an American consulate that he would like to secure information and quotations on the following: A car, comprising platform for operator, to run on standard gauge tracks, equipped with a motor of sufficient horsepower to haul six flat, platform cars, size 8 feet by 4 feet, height from track to platform 21 inches, weight of each car to be 800 pounds, each car carrying 2 tons of freight, no hauling up inclines, at a minimum speed of 10 miles per hour. He also desires particulars regarding a car as above to haul ten flat cars loaded with 2 tons of freight each. File No. 9,528.

Repair Shop Tools—The Corinth Automobile Company, Corinth, Miss., is in the market for machine tools for its repair shop, including a lathe, drill and milling machine.

Motor Trucks—A business man in the Far East informs an American consulate that he desires to secure illustrated catalogues, with price lists and discounts, gross and net shipping weights, capacity and horsepower of motor trucks for hauling goods from railway stations and steamboat landings to various parts of a certain city. The trucks must be of heavy construction and the wheels fitted with non-skidding solid tires, as the streets and roads are deep in places. Extra copies of the catalogues should be sent to the consulate for filing. File No. 9,520.

Automobiles—An American consular officer in a European country desires to receive catalogues of American manufacturers of medium-priced automobiles ranging in price to agent, f.o.b. New York, from $800 to $1,200. Price lists, discounts, terms and other pertinent information should be furnished. A considerable number of requests are being received by this officer from dealers and agents, and care will be taken to submit the catalogues, etc., to interested inquirers. File No. 9,503.

Automobile Service—An American consul has submitted a report, accompanied by certain documents, relating to a competition that has been opened by a municipal government in his district for the grant of a concession to conduct an omnibus-automobile service to be inaugurated upon the approaching discontinuance of an existing service by horse-drawn vehicles. These documents were received from the mayor of the city, who suggested that they be forwarded to first-class American firms that may desire to compete. Bids must be received by September 30, and the opening of the sealed schedules offered is to take place not later than October 10. The consul writes, however, that a reasonable postponement of these dates would no doubt, if necessary, be granted upon the application of interested firms desiring to submit offers. File No. 9,505.

Motor-Driven Plows—An importer and commission agent in a European country informs an American consulate that several of his clients desire prices and specifications of motor-driven plows. He adds that large numbers can be sold in this country, which is largely agricultural. What is wanted is a light motor-driven plow with two or three shares. The consulate would be glad to receive additional catalogues and price lists of all kinds of machinery, especially agricultural, as there is constant demand for them. File No. 9,510.

Customs Tariff of Japan—The duty on automobiles in general is 50 per cent, while the conventional duty is 35 per cent. The conventional duty applies to products of the United States. On parts the general duty is 30 per cent. and the conventional is 25 per cent.

How Tires Are Protected

Methods Used by Depot Men in Storing Goods to Supply the Automobile Trade of New York

Red Rays of the Lower Solar Spectrum and Dry Heat Are Regarded as Chief Enemies

LIGHT and dry heat are the most potent enemies of the stored tire and tube. Oil, grease and water are less powerful factors tending to deteriorate automobile rubber goods. Storage for a year or even more under scientific conditions will improve a tire and render it more serviceable, but if the conditions are not right, the same length of time will serve to destroy the usefulness of the stored tire.

These axiomatic truths have been recognized almost from the commencement of the gigantic automobile tire industry, but the underlying reasons for each of them have been subordinated to the axioms themselves.

Disposing of the effect of oil and grease, it may be said that the structure of rubber, either pure or in composition, is such that all oily or fatty substances have the property of entering into the rubber surfaces and destroying them. The immense importance of protecting tires and tubes from contact with oil or grease can not be made too emphatic, but ordinary care is sufficient to prevent such contact and so the proposition is not so grave as some of the other factors that go toward tire deterioration.

An interesting fact has been noted by the tire men that appears to be of so little importance that it would scarcely appeal to the casual user of tires as a factor, but in reality may account for apparently causeless blow-outs in a small percentage of tire mishaps.

In the process of manufacture where hand labor is used in building up the carcass of the casing, a drop of perspiration falling from the face or limbs of the workman and lodging between the plies of fabric upon which the tire is based, has been known to wreck a perfectly good shoe. The perspiration contains a certain proportion of grease from the sebaceous glands of the body and that tiny particle of grease embedded in the fabric spreads rapidly and separates the plies. If the original space occupied by the foreign matter is 1-8 inch in diameter it may grow to 1 inch or more under a small amount of travel, and if the separation lies in a vital spot there is a strong probability that the tire will blow at some inconvenient time.

One Little Drop of Honest Sweat

There is no way to guard against such a condition of manufacture until the handling of tires by the workmen shall be obviated by the use of machinery.

However, the proportion of tires ruined by drops of perspiration is exceedingly minute when compared with the total output and the same may be said for the numbers of tires spoiled by oil and grease while under storage at tire depots.

In the hands of consumers, there is a different story to tell; but the facts in the case are so well recognized by tire dealers and so clearly set forth to purchasers that the subdivision of the subject is not vital.

As regards the effect of water and moisture from the tire depot man's point of view, little need be said. It is obvious that if water gets inside a stored shoe and remains there until it is dried out by evaporation and if the process is repeated, the tire will be destroyed. This is unquestionably true if the water reaches the inner layer of fabric and is probably true even where the inside of the shoe is protected with a layer of rubber composition. But, a certain amount of humidity in the air is a good thing for stored tires. It prevents them from drying out to a destructive degree. The instruction books of some of the tire companies contain a caution to the depot man to sprinkle the floors of his storeroom occasionally so that the natural evaporation will render the air more humid.

It is old Sol himself who exerts a baneful influence upon the tire exposed to his rays; providing that such tire is not in service. It has been noted that tires displayed in show windows of shops where the sun has a full swing at them degenerate rapidly. Test of tires that have been exposed for 8 months in this way have been made and compared with tires in daily service. The conclusions are rather startling. It has been shown several times that the rubber in the tire lying in the show window is in worse condition from the viewpoint of service than the rubber contained in the tire that has been used daily on an automobile.

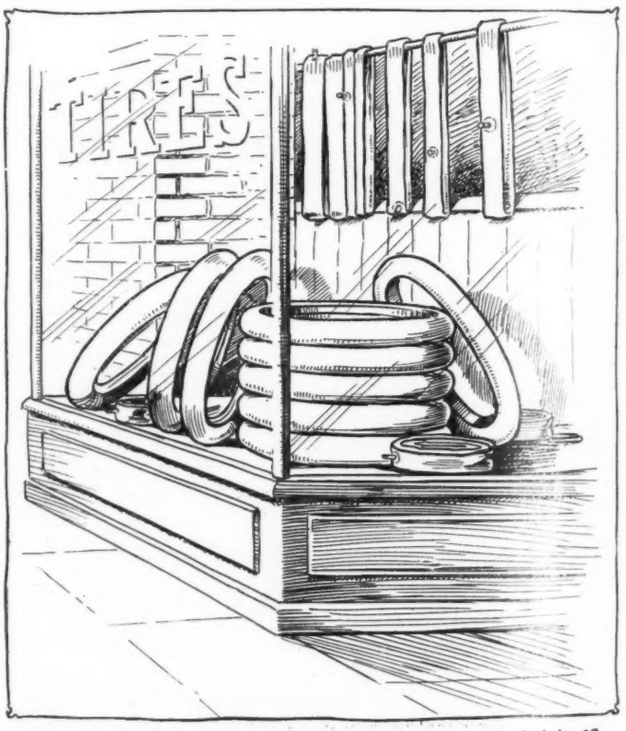
The chemical reasons for the change in the displayed tire are simply that the red rays of the lower part of the solar spectrum have an affinity for the rubber gum. The action of these red rays is the cause of the deterioration. Just what this action is, the rubber chemists still hold different opinions. Some of them hold that the rays set up a process of oxidation and the oxidation results in disintegration of the molecular structure of the rubber. Others state that the process is not oxidation, but is really something else which has not been classified so far.

At any rate the results are pretty well known. The tire surface becomes brittle and crumbles away and its life is short.

One view of this factor is that the effect of the sunshine is to make an extra cure. At every tire factory in the land final inspection of the product shows a percentage of over-cured tires. These are rejected by the inspecting officer and are not allowed to go out as first quality product. The action of the sun probably serves to bring about a condition of over-cure, or some similar condition, and a tire after exposure to the sun progresses to the stage where the inspector would have rejected it had the condition been reached before leaving the factory.

In its natural state as crude rubber, the effect of the sun is deleterious, bringing about a loss of elasticity and rendering the crude rubber less useful for exacting manufacture.

Dry heat ranks higher than all the other factors of destruction to tires in storage. The effect of heat is felt only slightly



Tires displayed in exposed show windows are subjected to an extra cure

by the rubber contained in the tires unless it is sufficient in degree to break down the rubber structure. It is chiefly apparent in its action upon the composition of which the rubber forms a part. Dry heat of say 100 degrees Fahrenheit has small effect upon the pure rubber used to impregnate and bind together the various plies of fabric, known to the industry as friction cloth. It does take away some of the moisture that is incorporated into the structure of the tire, but is not a major factor in that direction.

It is upon the tread that the dry heat works havoc. It saps out the moisture and dries the composition so it loses its characteristic elasticity, rendering the substance of the tread brittle and of little use.

The whole subject may be summed up as follows: Oil and grease are generally destructive, affecting fabric, carcass, bead and tread with impartial damage.

Water is chiefly dangerous to the fabric, causing it to rot and separates the plies.

The sun, through the action of its red rays, brings about oxidation, over-cure and loss of elasticity in the gum rubber.

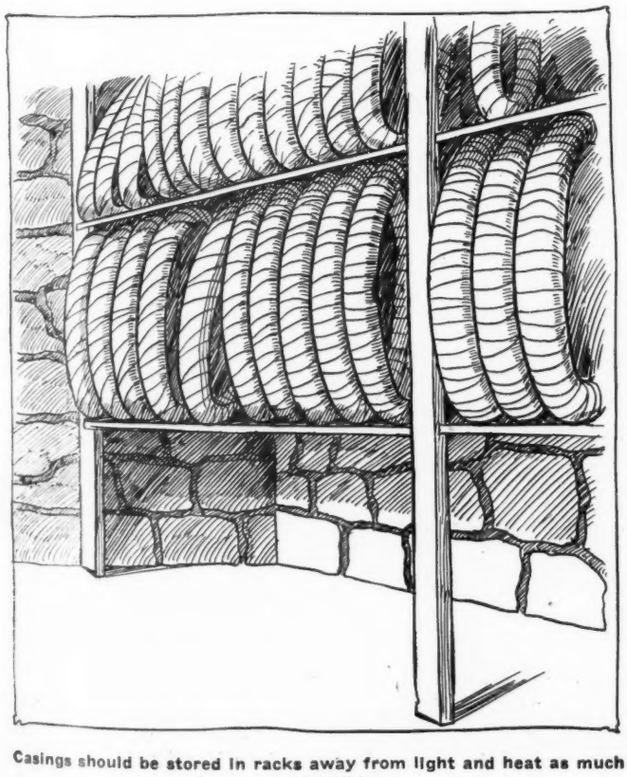
Dry heat affects the rubber composition, robbing it of its resilience.

The way to obviate these various effects is to avoid the cause in each instance.

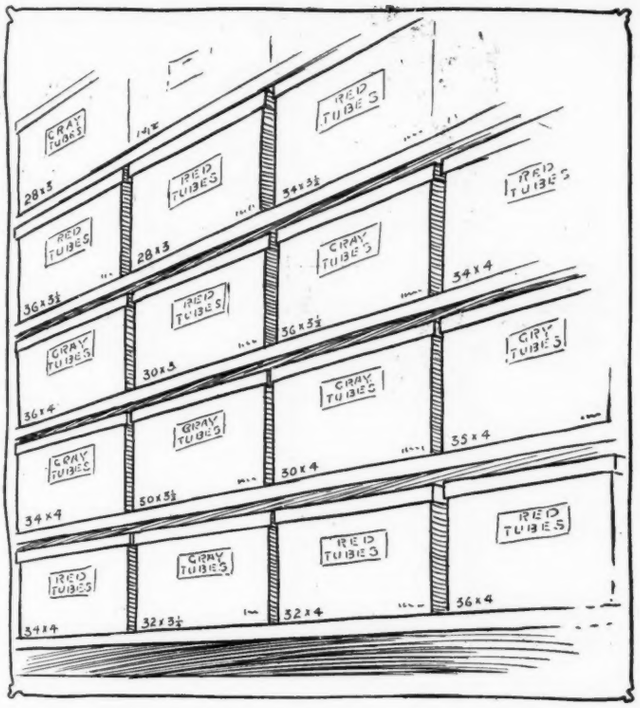
Modern practice is very uniform. In the selection of a storeroom for tires and tubes, the officer who has the responsibility always picks out a location where the sun can not reach his wares. He strives to make such arrangements as will insure moderate temperatures in the storeroom. He may or may not provide for additional humidity in the air by sprinkling the floors or some other expedient.

Stored tires should never be placed flat upon the floor or shelves. They should be arranged vertically, resting upon sectional racks. They should not only be placed out of the sunlight but they should also be stored in such a way that a free circulation of air may be had, under, above and beside them. They should be wrapped carefully in paper or some other protective material.

If tires are laid one on another in a pile, the lower tires will be pressed out of shape and strained unwarrantably by the weight of those above. This method of placing them in storage may well be charged with some of the ruptures of fabric-plies that have plagued automobile operators in the past. Such a method is never used in the modern depot.



Casings should be stored in racks away from light and heat as much as possible



Inner tubes must be treated with even greater care than shoes

Tubes, composed of a much higher percentage of gum rubber than the casings, require much care in storage to guard against heat and light as well as injury through contact with hard, sharp substances. They are usually stored in separate bags or cartons on shelves that keep them away from standing moisture.

The ideal conditions under which tires should be stored are: In the first place, in a dark room, preferably a basement. If there are windows in the room, they should be heavily shaded or else have a northern exposure. It is the direct rays of the sun that are destructive, but reflected and refracted rays probably have some effect also. The room should be comfortably dry in the sense that there should be no standing moisture on the floors or dripping from the wall, but the natural humidity of the air is not destructive and may be increased mechanically with benefit, according to some authorities. The temperature should be moderate and constant, the ideal condition for storage being somewhere between 45 and 70 degrees Fahrenheit. Freezing renders rubber brittle and alternate freezing and thawing of any substance does it no good, to say the least.

Tire Is Improved By Storage

It is stated very positively that if a fresh tire is wrapped and stored in a dark room where the temperature is kept within a moderate range and where it may be protected from oil, grease and water, that at the end of 1 year it will have improved to such an extent that it will deliver from 100 to 1,000 more miles than if it had been put into use as soon as the manufacturing processes had been concluded. Of course, quantities of standard sizes are stored for as much as 6 months and the depot men claim that that period of seasoning has proved to be advantageous.

The limit of time during which improvement takes place has not been set with definiteness. Several of the leading depot men say that they are willing to give the standard guarantee of their factories with tires that have been stored for 2 years. At 3 years they are doubtful but hopeful, the data being insufficient to permit them to be certain.

Letters Answered and Discussed

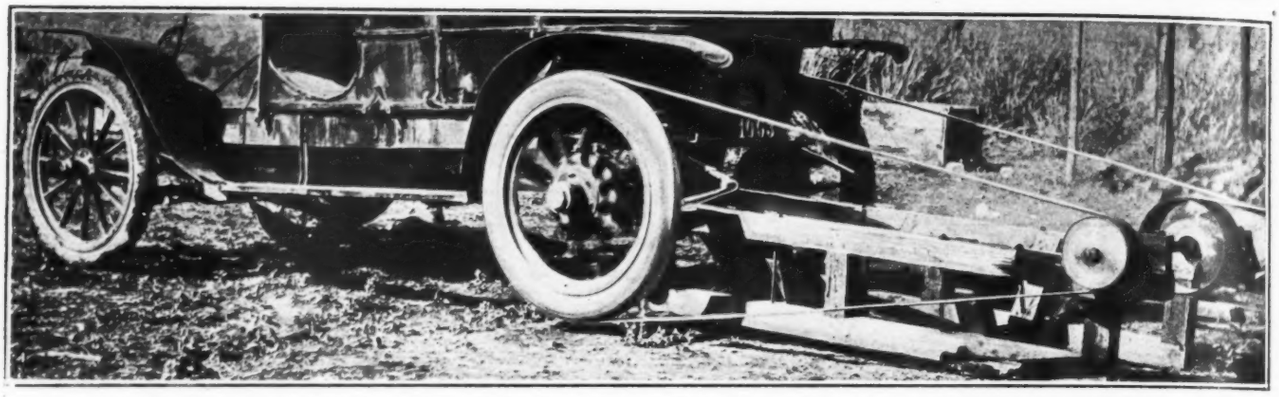


Fig. 1—Franklin car rigged up to run a saw by means of belting taking the drive from the rear wheels

Effect of Valve Chamber Expansion; Commercial Glycerine Contains Acid; Carrying Spare Casings; Radiating Surface Required for 28 Horsepower; Motor Tire Pump; Scraping Brake Shoe; Heating the Garage

Expansion of Cylinder Metal

Editor THE AUTOMOBILE:—Recently you gave instructions as to setting push rods on valves. I would like to have you explain why the walls of the firing chamber do not expand as much if not more than the push rods when they become hot. Are they not hotter than the push rods?

Hillsboro, N. H. W. H. MANAHAN.

—The metal of the cylinder casting which is in direct proximity to the flame and therefore submitted directly to the heat of explosion would naturally expand more than the metal of the push rods. This would not alter the fact that in the adjustment of the push rods themselves a small amount of clearance would have to be left to allow for the expansion of the rod.

Fig. 2—Final drive to saw when using the car as the driving power for a saw

Glycerine No Scale Preventer

Editor THE AUTOMOBILE:—I read that glycerine, used in the radiator, would prevent the formation of scale. Is there any truth in this statement? Will glycerine form a chemical compound in connection with hard water that will hurt the metal?

Fort Wayne, Ind. GEORGE T. TOWNSEND, JR.

—Attempts to use glycerine as a scale preventer in radiators are rare indeed, as it is difficult to see that it would be of any value for this purpose. Glycerine has been used extensively in radiators, however, as an anti-freezing agent and in this respect is very valuable. The boiling point of glycerine is very high, while the freezing point is so low that it cannot be reached under climatic conditions in any place where automobiling is practicable. The commercially pure glycerine is very expensive, however, and this is a decided barrier in the way of its use. Any other but the commercially pure glycerine is sure to contain fatty acids which destroy the metal-work in the circulating system. A monthly washing out of the radiator with a handful of soda to a pail of boiling water will keep the cooling system bright and clean. The soda solution is poured into the radiator and the motor is run for a minute to thoroughly pass the solution through the cooling system. It is then drained out and fresh water put into the radiator.

How to Carry Spare Casings

Editor THE AUTOMOBILE:—Would you please tell me through THE AUTOMOBILE what is the best way to carry spare casings so they will not be affected by the weather and still at the same time be out of the way? What are some of the most approved methods adopted by the makers of the latest model cars? The manufacturers of automobiles should make some arrangements for an important matter of this kind and I should like to know what they are doing.

Newark, N. J. PROSPECTIVE.

—There are several means of carrying spare tires, all of them good and some of them especially ingenious. The Rambler concern, for instance, furnishes an entire spare wheel with

each of its cars. This is carried on the rear and locked in place with a special lock. The Knox company has a very neat arrangement which is shown in Fig. 4. This is a horizontally-carried tire trunk which can be easily reached and which will prevent the deadly rays of the sun from striking the rubber. It should be known that the practice of carrying the extra tubes without some kind of a protective covering over them is one of the most expensive examples of carelessness possible. The sun will take the life out of the rubber in amazingly short time on a hot day. Light is destructive to rubber, even when the direct rays of the sun are not shining upon it. A tire which is carried in an ingenious and convenient manner is also shown in Fig. 4. It will be noticed, however, that the care of the maker in furnishing a good place in which to keep the extra tire has not extended to the user of the car, who has neglected to furnish some kind of a covering for the shoe, from which he expects his full measure of mileage. A method of carrying tires which is fast becoming obsolete as the advantages of carrying them behind the body are becoming recognized is shown in Fig. 3, where the familiar brackets mounted on the side of the car are shown. On roadsters of the modern type, the rear deck furnishes an excellent support for the spare shoe. It may be stated, as far as care of the casing is concerned in carrying, the important feature is not so much where it is carried, but how well protected it is against sun and water.

Plenty of Radiating Surface

Editor THE AUTOMOBILE:—Will you please answer the following:

1. How many square inches of radiating surface are required per horsepower or how many would be required to properly cool a 4 1-4 by 4 1-2 T-head motor?

2. My radiator, which is composed of ninety-one plain copper tubes, 1-2 inch in diameter, 18 inches long, fails utterly on a hot day, in spite of an advanced spark, a good circulating pump, a tight fan belt and a clean radiator. What is the trouble?

Loudonville, O. JOHN N. GETZ.

—1. It is impossible to state how many square inches of radiating surface are required to properly cool a motor, as this depends upon the type of radiator used, the rapidity of the water circulation and a number of other factors. With the car you mention you have 89.5 square inches of tube area to each horsepower using the S. A. E. rating of 28.8 for your motor. This would be ample if everything was in proper condition.

2. There are many other things to consider other than those you have mentioned before you can positively state that the trouble is due to a radiator which does not answer the requirements of the motor. In the first place, the increased number of accessories which are being placed beneath the hood of a modern car are rendering it increasingly difficult for the fan to bring a supply of cool water beneath the engine bonnet. The hot air backed up behind the radiator cannot escape and as a result very little cooling effect is had from the radiator. Another thing that happens very often is a tear on the inside of the hose connections of the radiator. A flap of loose fabric will stretch across the opening and prevent the free passage of the water and overheating will result. Again, it might be that the cooling system is not to blame, the trouble lying in the oiling of the motor. Insufficient oil will allow the motor to run hotter than would ordinarily be the case and as a result the radiator steams. The steam will escape, thereby lessening the amount of cooling fluid in the system and the trouble will be augmented. A polished radiator will not act well because polish prevents radiation. If you have the radiator a dull black its efficiency will be markedly increased.

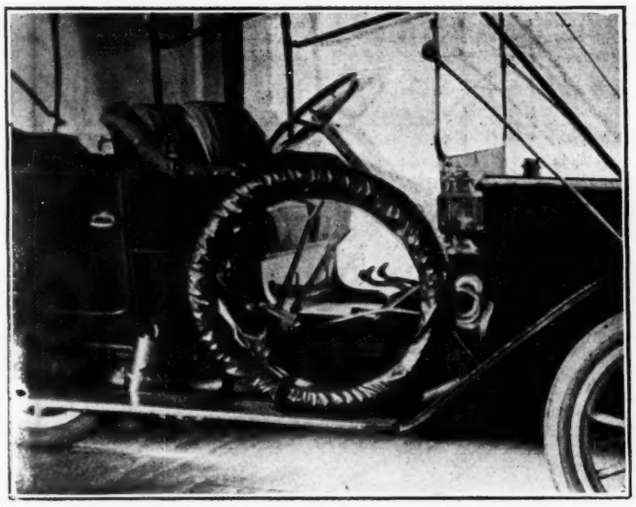


Fig. 3—Method of carrying tires on side; they are safe here, but appearance is bad

Using Car to Run Saw Mill

Editor THE AUTOMOBILE:—Is it possible to drive a buzz saw or other pieces of similar machinery by the engine in a car? How is the belting or shafting arranged when this is done? I have a rotary saw which would do a good part of the work in the preparation of wood for the winter supply of fuel if I could only drive it through the motor of my car.

Wenatchee, Wash. FARMER.

—The illustrations herewith show the method which has been used by a farmer owning a Franklin car. A stiff structure of beams was built up to assure alignment of the belting and two belts from the wheels run to two pulley wheels mounted on a shaft supported by the heavy beam structure as shown in Fig. 2. In the center of the shaft which carries the two smaller wheels at its extremities is a larger pulley wheel from which the power is carried back to the structure shown in Fig. 1. The latter holds the saw and it is here that the work is done.

Suggests Motor Driven Pumps

Editor THE AUTOMOBILE:—I am sending in a drawing of a suggested tire pump (reproduced, Fig. 7) which is attached to

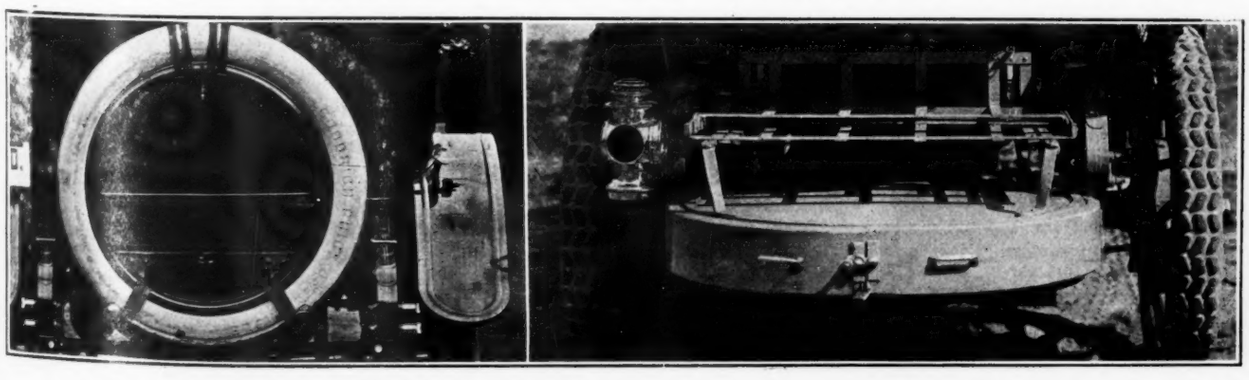


Fig. 4—Tire carried on the rear of a car. The casing should have been covered. The neat Knox tire trunk

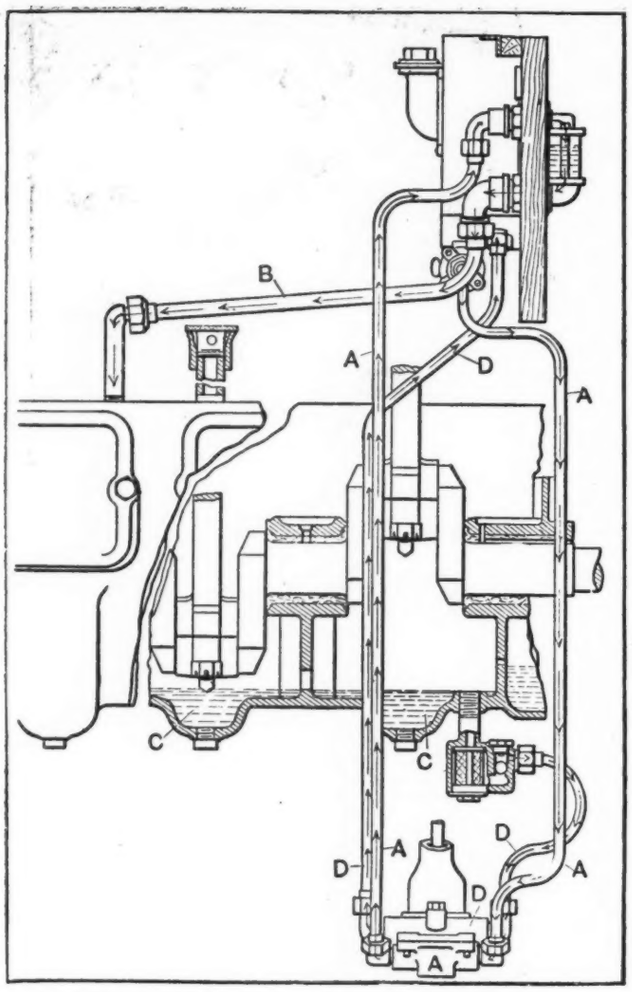


Fig. 5—The oiling system used on the Maxwell Model I cars

the spark-plug aperature of the motor. Would a pump of this kind operate?

Honea Path, S. C. ROGER R. DAVIS.

—You would not be able to put more than about 20 pounds of air into your tires with a pump of this nature. It must be remembered that the compression pressure ordinarily is only about 60 pounds and with the expansion and the work that would have to be done in working the pump and passing through the tubing from the pump to the tire you would be doing well to secure this amount without the use of a differential piston which would raise the pressure considerably. As the device stands it would not work.

Has Carbon and Axle Trouble

Editor THE AUTOMOBILE:—I have a four-cylinder model I 1911 Maxwell touring car on which the two back cylinders carbonize after running about 100 miles. Can you give me any light on the matter as to where the fault is and how to eleminate it? The two front cylinders have been cleaned once in 2,000 miles and seem to be perfectly clean after 3,000 miles of running.

Also the brake band drum where it fits up close to the rear axle end rubs against the support holding the brake rods and is commencing to cut somewhat. How can I set the wheel out far enough to stop this. I inclose a cut showing where the drum strikes.

Orangeville, Ill. H. C. S.

—To understand the trouble which causes carbonization of the two rear cylinders the oiling system used on your car must be thoroughly comprehended. The Maxwell model I is lubricated by the oil spray created by the splash of the connecting-rods into the pools of oil which are held by the series of troughs placed below the respective cylinders. The oil supply is held in the bottom of the crankcase in these splash troughs and also in the supply tank, and is kept in a state of continual circulation. This circulation is kept up by means of a gear-driven pump located on the left-hand side of the motor and operated by means of the camshaft.

The course of the oil as it passes through the oiling system may be traced by following the pipe leads starting from the tank. The oil starts from the tank which is placed at a considerable height above the pump and therefore has a head sufficient to give the oil a ready flow. The lead from the tank to the pump A, Fig. 5, is for the most part straight and leads directly into the suction port. From here the oil is forced up to the sight feed on the dash. After passing through the sight feed the oil will flow down into the crankcase through B, to replenish the supply in the splash trough C and maintain it at the proper level. After attaining this level there will be a flow into the standpipe placed at the proper height to catch the oil and lead it back again to the pump, from where it is passed up to the tank from which it started through D and is thoroughly strained before again passing through the system. All the moving parts within the motor itself are lubricated by the splash.

The standpipe through which the oil flows from the splash troughs C to the lead D, passing on its way the strainer, presents one point at which the oil supply may be adjusted. This standpipe, as stated, is fixed at the factory at the correct height for removing the oil when it reaches the level at which the connecting-rods dip into the oil. By screwing this pipe out a little the level is lowered, and smoking troubles, if there are any, will be abated. The pipe must not be screwed down too far or else the motor will be starved of oil in a very short space of time and as a result a case of seized pistons will develop. It would be unwise to attempt to reduce the supply of oil as per the above directions until you have first examined the piston rings in the two cylinders giving the trouble. It is very possible that they are either badly worn or broken, thus permitting oil to work its way past them into the cylinder heads.

2. In the live axle used on these cars, the weight is carried on the axle drive shaft. If, for any reason, the hub cap which holds the end of this shaft should become loose and should back off it would allow the end of the axle to wear the hub center to such an extent that when the latter is tightened again the wheel will go further up on the axle than it did formerly. This will bring the drum against the bracket and cause it to cut the latter. It is very possible that the hub is loose at the present moment allowing the wheel to cant in at the top, which brings the drum against the bracket in the same maner as would be the case were the whole wheel too far up on the axle shaft.

To cure this trouble, remove the hub and the axle. Examine the opening in the hub center very carefully to see if it is worn. If so, a new hub center will cure the trouble, provided no other parts are damaged. If the car has been run for an extended length of time in a damaged condition it is probable that further damage has been sustained. The parts which could be harmed by such a state of affairs are the hub center, axle shaft, outer roller bearing, taper key on axle end and the brake rod bracket.

Heating the Private Garage

Editor THE AUTOMOBILE:—I desire to learn of an inexpensive but satisfactory method of heating my garage and will appreciate any information you may be able to give me. My garage is of wood construction, shingled. Last winter we used a stove, but found that the temperature varied greatly.

Mount Vernon, N. Y. A. H. B.

—The problem of heating the private garage has long been a source of worry to the owner who does not maintain an establishment in which a chauffeur, and perhaps others, sleep. For

the owner who takes care of his own car and who takes a delight in working about it during the winter months, the heating problem is a source of expense which, while necessary, must be cut down to the minimum. It is better for the car that the temperature of the garage be kept above 60 degrees, as cold weather affects both the metal in the car and the enamel upon it. If the car is to be used during the winter it is a necessity that the garage be constantly heated.

The general methods employed for heating a garage may be roughly divided into two classes. The first is where the heating system is within the garage itself and the second is where the heat is carried into the building from an external source, such as from the heating system of the residenee, if the garage is on the same premises.

Where the heating system is located directly in the garage there is the choice of the regular stove, gas, hot air or the steam or hot-water apparatus. The stove has the objectionable feature mentioned in your letter and, besides, is unsafe in a frame garage. Gas heaters have the objectionable feature of being unsafe and against the underwriters' laws for garage work. Gas is in itself a dangerous thing about a garage and, although there is a type of gas stove which operates on the principle of the Davy lamp with a screen that prevents the ignition of the gas, this method has not been adopted extensively for the use of the automobilist keeping a private garage because of contrary legislation and also because the stoves of this sort, of which a few meritorious examples have been put upon the market, have never become particularly well known.

It would be impractical in the average small wood garage to have a steam or hot-water plant installed, because it would take up valuable space and would be expensive. When installed, however, it is managed the same way as in any other type of building. If the garage is of wood, care must be used in the installation of the heating plant. Most garage owners, when putting in such a plant, build a small concrete addition to the garage and make the wall thick enough to fulfill the regulations of the underwriters or the municipal fire department.

When the heat is taken in from an exterior source, the heating plant of the residence or an electric heater may be used. The latter is expensive, 10 cents per kilowatt-hour being charged generally for the current. The electric heater uses so much current that the cost of running such a plant would be prohibitive.

A system which has been worked to good advantage where the residence was heated by steam, or hot water, was to run steam or hot-water pipes from the boiler in the celler of the house to a radiator in the garage. With the pipes carefully lagged the amount of heat lost through a pipe will be surprisingly small and there will be no difficulty in carrying the warm fluid 50 feet underground to the radiator, although an increased steam pressure will be necessary to take care of the added drain on the resouces of the furnace. When the level of the radiator is below the boiler there will be difficulty in getting the water back to the boiler. For this reason the radiator will have to be placed above the boiler level or the scheme will not work.

Should the hot-air system of heating be used in the house, it will be possible to lead a pipe over to a register in the garage. This will mean very careful lagging with astestos and burying the hot-air pipe in the ground. The walls of the garage will have to be very carefully chinked in order that the temperature can be kept to the required 60 degrees. The hot-air system, if carefully installed, will work well. There will be no danger of water freezing in the pipes and bursting them when the furnace accidentally goes out. Knowing the tendency of furnaces to do that very thing on some of the coldest nights it would be wise not to put entire dependency on it during the cold weather, but to also put a good anti-freezing solution into the radiator. A 30 per cent. solution of denatured alcohol and water, that is, 1 1-2 quarts of alcohol to 1 gallon of water will be safe down as far as zero.

The placing of the radiator or register is very often a matter of conditions to be met and not of choice. If the heat is brought from the residence, the pipe will be invariably led in from the nearest side of the building and the radiator will naturally be near that wall. It is a good arrangement to have the raditor near the point where the radiator of the car will be when it is in the garage for the purpose of keeping the water as warm as possible, even though the fire in the furnace or hot-water plant be low. Placing the heater near a window is also a good arrangement as the currents of cool air are warmed as they enter and an even distribution of heat is maintained.

For the small frame garage, the choice seems to lie between that of using the heating plant of the house or of building a small concrete addition and putting a heating system in this. The system used in the residence will be the cheapest and most satisfactory method in any case where the latter service is satisfactory and the garage not too far away, or if the level upon which the garage stands is not lower than the hot-water or steam heating plant in the basement of the residence.

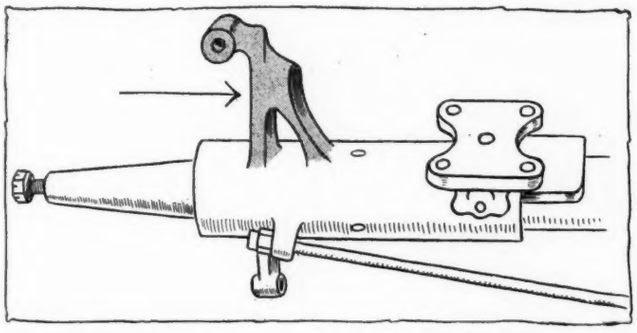


Fig. 6—Maxwell model I, rear axle. Arrow points to spot where drum rubs bracket

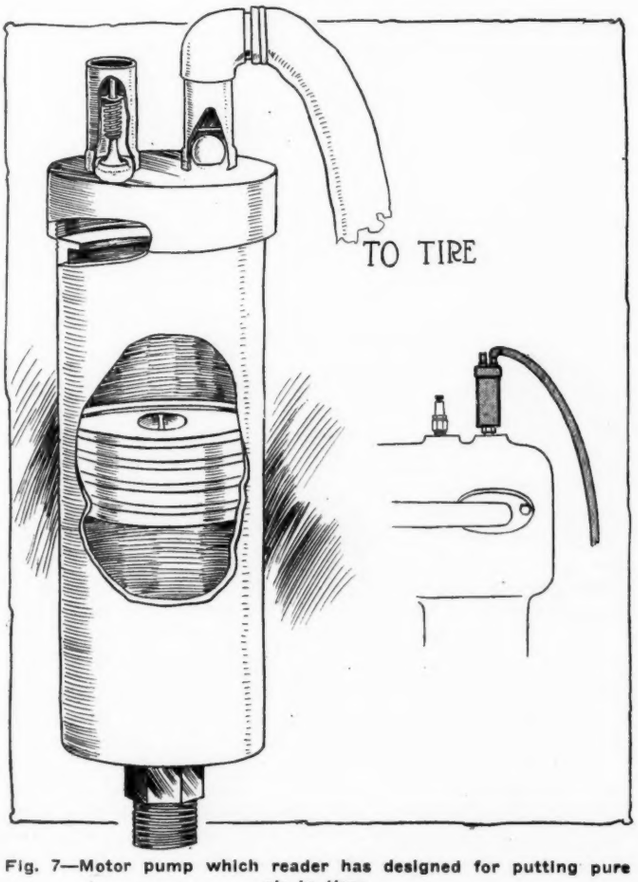
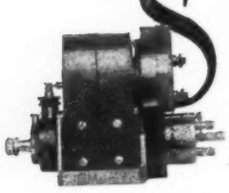


Fig. 7—Motor pump which reader has designed for putting pure air in tires

SPLENDID SIMMS PLANT

Running tests in the final testing departments in the factory of the Simms Magneto Company at Bloomfield, N. J.

Company Is Exceedingly Fortunate in Having the Advantage of a Well-Constructed Modern Factory Equipped in the Most Elaborate Manner with the Best of Up-to-Date Machinery Adapted to Its Purposes



A Simms magneto

SELDOM does a newly-organized company have the advantage of being immediately in possession of a commodious, modern plant, fresh from the hands of the builders and yet fully equipped with the most up-to-date machinery. When the Simms Magneto Company, Bloomfield, N. J., was reorganized this summer, increasing its capital from $1,000,000 to $1,750,000, it was fortunate enough to be in such a position. The old company had constructed the factory especially for the manufacture of magnetos and other automobile accessories but had done practically nothing further. The new concern, however, immediately upon effecting the reorganization, set about getting the plant into operation in an energetic way that bodes well for the future success of the undertaking.

Though practically nothing has been done so far in the way of production in quantity, the men in charge have been gradually getting things into shape at the plant, confining their efforts in the manufacturing line to the turning out of 100 magnetos designed for experimental purposes and for samples to be used in introducing the instruments.

Although at full capacity the factory will employ from 500 to 600 men, there are only about 150 now at work, the only active operations being the completion of the 100 magnetos mentioned, making some minor changes in the present design of the instrument and finishing a quantity of tools with which to carry on the work of production.

Some Overtime Work Already

Several departments are working overtime, that is, to about 8 o'clock in the evening. This is necessitated by the immense amount of preparatory work entailed by the approach of the time when the factory is to be put into regular manufacturing operation.

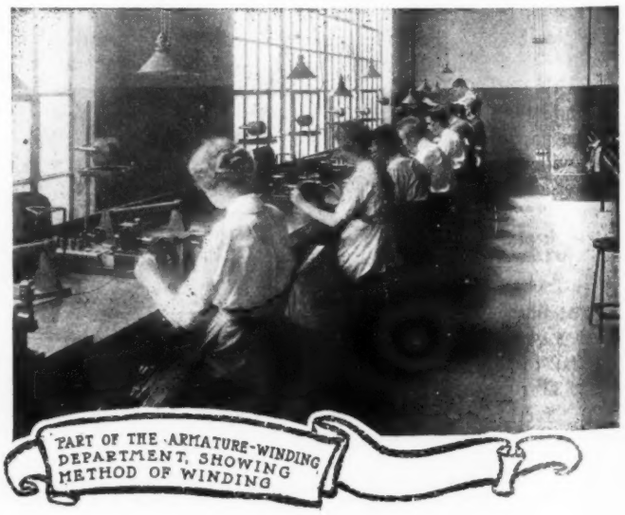
At full capacity, the plant will turn out approximately 50,000 complete magnetos a year together with about 150,000 sparkplugs, which the company will also include in its products. It is also more than likely that a line of carbureters will be manufactured, the company having secured a license from the British owners of the patents controlling the design of the S. U. carbureter. The company may also make some switches and other electrical devices applicable to automobiles.

The factory is situated in the outskirts of Bloomfield, on the line of the Lackawanna railroad, within half an hour of New York City, which promises excellent shipping facilities, the proximity of the metropolis being another favorable factor.

Entire Factory Is Fireproof

One of the striking features of the plant is the type of construction employed. The entire factory is absolutely fireproof, being of concrete, steel and glass, the walls giving the appearance of huge windows, so liberal is the provision for light and ventilation. In this respect, certainly, the plant is unsurpassed. The floors are all of solid concrete. In its general appearance, the whole establishment conveys an impression of solidity and efficiency.

The power house, as at present laid out, comprises a black-



PART OF THE ARMATURE-WINDING DEPARTMENT, SHOWING METHOD OF WINDING

smith shop, besides the engine room in which are placed the two 125-horsepower American Ball, two-cylinder combined vertical and horizontal compound engines connected to two direct-driven dynamos generating the power for the entire plant. Two tubular boilers are employed to produce the steam for the engines. Water is pumped directly from the company's artesian well to supply these boilers.

While the buildings of the company could hardly be termed a mammoth plant as yet the two-story concrete main building, which is built in the form of a hollow square, has a floor-space of over 70,000 square feet, the outside dimensions of the building being 231 by 177 feet while the central court measures 137 by 43 feet. The structure is designed with a view to the possible future addition of a third story, the walls being constructed sufficiently strong to bear the added weight.

The most important portions of the plant are equipped with a sprinkling system as an additional safeguard against fire and the remaining parts are provided with high-pressure water pipes and reels of fire hose. For keeping records, blueprints and other valuable but perishable things, there are four steel vaults in various parts of the main building.

Three separate steel stairways, cut off from the floors by fire walls, are located in different parts of the building to give additional protection to the operatives in case of fire.

Among the departments on the first floor are the following: receiving, machine, finished parts stores, final assembly, final test and shipping, besides the machine tool department where all the tools and some of the machines used in the factory are made. On the second floor are: the general offices, engineering and drafting department, armature winding and impregnating departments, the separate dining rooms for the men and women employed by the company, the experimental and testing laboratory, etc. Coil assembling and testing departments are also situated on the second floor, together with a special spark-plug testing department and a carpenter shop.

The steel and concrete power house, which is separate from the factory proper, is of ample size for the present needs of the concern and has abundant provision for subsequent expansion.

Material Has Regular Route

In laying out the main building, the principles of system were kept in mind and, as a result, the plant was planned so that the material, after entering the receiving department in a raw state, has a regular path through the factory laid out for it, thus doing away with a considerable amount of unnecessary traveling back and forth from one department to another and a consequent waste of time, labor and expense. In fact, the best way to see the factory, especially if one desires to understand the manufacturing and testing processes through which Simms magnetos pass, is to start at the receiving platform, and then

A CORNER OF THE INSPECTION DEPARTMENT. HERE ALL PARTS ARE INSPECTED FOR SIZE, QUALITY AND WORKMANSHIP

ONE OF THE VISTAS IN THE MACHINE SHOP

ONE END OF THE MEN'S DINING ROOM

to go through the various departments in the order in which the material proceeds from its arrival to the shipping department, where it leaves the factory as a finished magneto.

All the raw material which is used at the plant is received at the platform situated at the right side of the entrance to the inside court. Here everything is carefully inspected before it is moved to the raw material stores department. This is situated at the extreme right of the front building in the big room adjacent to the general machine department.

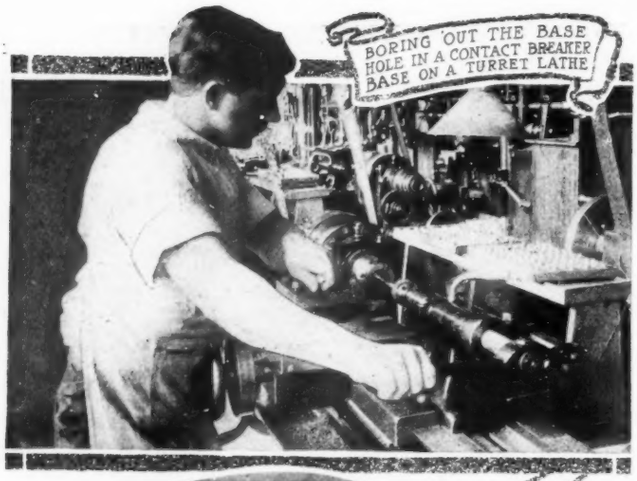
From the raw material storeroom all the material is moved by requisitions from the production department to the machine department where it begins to undergo the process of manufacture into the various component parts of the magnetos, carbureters and spark-plugs which are to form the line of the company.

Between the various steps of construction all parts are carefully inspected, as well as every time they are moved from one machine to another, and after they are completed they are finally inspected and then sent to the finished parts stores department to await requisitions distributing them to the different assembly departments, in which there are assembled into groups or complete machines, as the case may be.

The finished parts stores department is situated at the rear of the main building between the general machine department and the final assembly department and adjoining the inspection department. Consequently, only a small amount of labor and expense is entailed in handling the material to the best advantage.

Instruments Thoroughly Tested

Adjoining the final assembly department is the final test department. After the magnetos come from the assembling room, they are sent to the testing room where they undergo a very rigid test, called the high speed test. In this test, the machine is run at a speed of 5,500 revolutions per minute for a period of 1 hour. This speed is about three times as great as any it would be called upon to sustain in the most rigorous of actual service and over four times as great as the speed at which



BORING OUT THE BASE HOLE IN A CONTACT BREAKER BASE ON A TURRET LATHE

PARTIAL VIEW OF THE ASSEMBLY DEPARTMENT AT NOON HOUR

it would run under normal conditions. After the high speed test has been completed, and if the results obtained are satisfactory, the instrument is run at a rate of 3,500 revolutions per minute for over 4 hours, the spark-gap being varied from time to time to test the strength of the spark over various distances. When this test has been carried out, if the magneto gives satisfactory results in every way it is given a slow speed test at a speed of 200 revolutions per minute. This test is also known as the compression test as it consiststs in trying out the magneto by connecting it with spark-plugs incased in an air-tight glass carrying 200 pounds pressure to the square inch. This pressure is almost three times as great as the compression obtained under normal conditions in a gasoline engine. If, after this test, the instrument is found perfect in every respect as regards performance, it is sent to the inspection department where it is carefully looked over to see that none of the screws or connections have become loose under the strain of the tests. If all parts are in good condition it is then sent to the shipping department, which adjoins the final test department, being situated at the front of the building to the left of the entrance to the cenral court.

Special Test for Vibration

In connection with the testing work there is a special test which only a few machines from each lot have to undergo as from their performance the quality of the rest of the lot may be readily determined. This is called a vibration test and consists in putting the magneto on a specially-designed machine which is mechanically vibrated to a much greater extent than could possibly be the case in actual service. The object of this test is to determine whether the condenser or other connections are being made properly and also to find out if any of the screws or bolts used in the machine can be loosened by the vibration, excessive vibration being one of the main causes for magneto troubles.

The winding of the magneto armatures is an interesting step in the manufacturing process. Specially-designed machines are used for this purpose. These are operated in the manner shown in the illustration on page 678, the workers being seated on steel stools constructed with a view to making the work as easy as possible insofar as the worker's comfort is concerned. The core of the armature is placed on the shaft rotated by the crank shown in the picture, thus winding the wire from the spool which is hung on the rack adjustably mounted on the upright shaft at the back of the machine.

After the armatures are wound they are placed on shelves in the rack in the impregnator shown in the accompanying illustration. This is then lowered into the drum which is filled with insulating varnish. This is heated by the steam coil in the sides of the impregnator drum. The cover is then carefully fastened down and the air is exhausted from the interior of the drum until a certain degree of vacuum is obtained. This insures the absolute permeation of the insulating varnish into all the interstices of the armature.

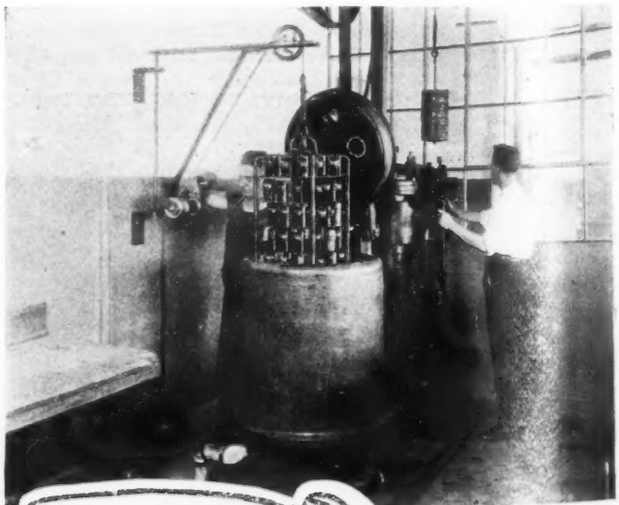
Armatures Carefully Inspected

When completed, the armatures are put to every test known to the magneto experts and then ground to size within a limit of .001 of an inch, when they are again inspected and thoroughly tested before being sent to the finished parts stores department where they are held until needed in the final assembling department.

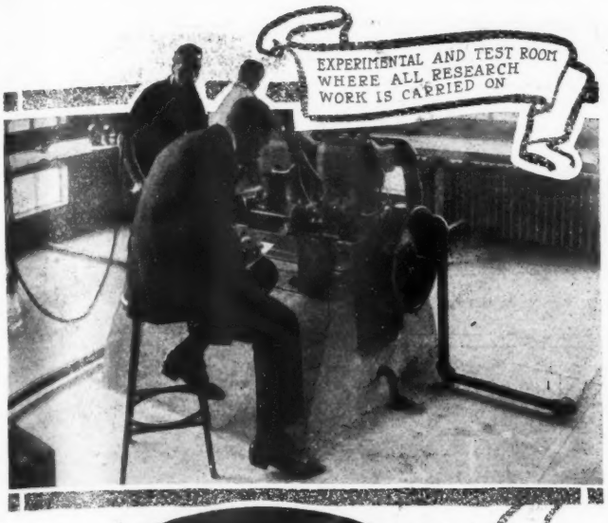
The condensers are made in the same careful manner as the armatures and of the best obtainable material, being subjected to the same rigid tests and series of inspections. The inspection must be particularly careful in regard to this part of the magneto as a single flaw in the hand-split mica, no matter how small it may be, will eventually render the condenser useless for magneto construction.

The engineering and drafting room, which is situated on the south side of the main building, on the second floor, is very large, giving ample room for the tables of the draftsmen and the desk of the man in charge, besides leaving a large open space which may be utilized for the enlargement of the department or for some other purpose as the subsequent development of the business may determine.

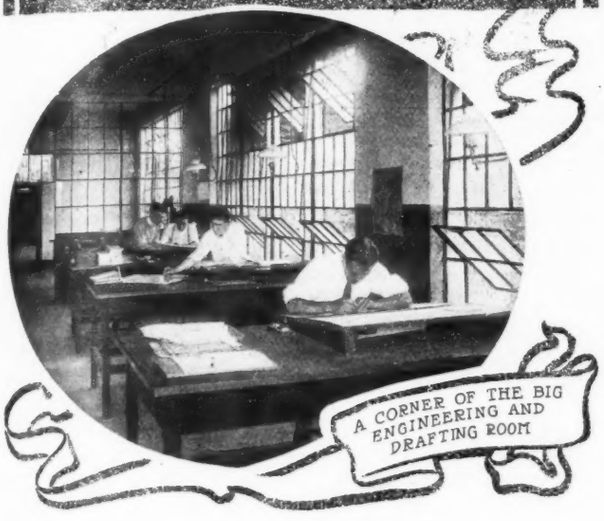
The experimental and test room is fitted up for all sorts of experimental work in connection with the operation of gasoline motors, being equipped with two motors, one a four-cylinder



DROPPING A LOAD OF ARMATURES INTO THE IMPREGNATOR WHICH SATURATES THEM WITH VARNISH



EXPERIMENTAL AND TEST ROOM WHERE ALL RESEARCH WORK IS CARRIED ON



A CORNER OF THE BIG ENGINEERING AND DRAFTING ROOM

and the other a six-cylinder, mounted on steel and concrete bases. These may be used for testing magnetos, carbureters and spark-plugs, as well as anything else which the company might desire to add to its automobile accessory line. Around the walls are benches for the experimenters to work on, together with provision for whatever tools, etc., they would require in their operations.

The machine department is a delight to a good mechanic's eye, filled as it is with the most modern types of machinery, many of the machines being of special design. All of the tools and fixtures used in the manufacture of the company's product are designed and made in the plant and are so constructed that all parts turned out by them are absolutely interchangeable. It is completely equipped with drills of all the types necessary to the manufacture of tools and magneto parts, milling machines, etc., together with two rows of high-speed automatics. An idea of the splendid equipment of this room may be gained from the illustration on page 679, which is a view down one of the aisles formed by the machines. There are two of these aisles in the shop besides the small one formed by the double rows of automatics.

Grinding Equipment Complete

The grinding room, which opens off the machine shop, is well supplied with grinding machines and lathes, as shown in the illustration at the right. In this picture the method of hanging the electric lights will be noted. The cords are made extra long and then looped up, so that the workman may easily extend the lights to any part of the room immediately surrounding his machine. This idea is followed out throughout the entire factory in the suspension of the lights. Attention to details such as these means comfort for the workmen and a consequent increase in productive efficiency.

The inspection department is an interesting place. An excellent view of this is given on page 679, showing the men at their work, the chief inspectors, or foremen, consulting with the workers and instructing them. Here the parts are all inspected for size, quality and workmanship, micrometers and other accurate instruments being used to insure exactness in all measurements.

The finished parts stores department, located at the rear of the central court, is fitted up with bins for storing each part, the parts coming in from the machine shop and then being moved by requisition to the assembling department, the next step in the regular process of manufacture.

The final testing department has several long benches fitted with the necessary connections for attaching to magnetos to be tested for running qualities, durability, etc. At full capacity, this department can complete such tests on about 300 magnetos a day, due to its large bench capacity. There is also a special slow speed testing device which is employed in making the compression test.

For the comfort of the employes and employees of the company, each department is provided with separate wash and locker rooms as well as a running fountain of drinking water, the stream bubbling up into the air in a delightfully refreshing way and obviating the use of the dangerous common drinking cup.

Two Dining Rooms Provided

The plant is also fitted with two dining rooms, one for the men and the other for the women, part of the men's dining room being shown in the accompanying illustration. In connection with the dining rooms is a commodious and well-kept kitchen, equipped with the necessary paraphernalia for all sorts of cooking, and a large serving pantry. The men in charge of the plant class the entire arrangement as the culinary department. This department is not yet in operation but as soon as manufacturing begins it will be put into regular service.

Steel stools are used throughout the entire plant. These are not only simple and serviceable but also are very durable, besides presenting a neat appearance. Also, they may be readily disposed of when additional space is required as their compactness renders them easy to fit into odd corners.

The Simms company appreciates the productive advantages of the most modern details of equipment, and, in accordance with the principles of systematic management, keeps everything about the plant exceedingly neat and in a well-ordered condition. As a result, the general impression gained from this particular feature of the establishment is one of careful supervision.

VIEW OF HALF OF THE GRINDING ROOM, SHOWING EXCELLENT PROVISION FOR POWER CONNECTION

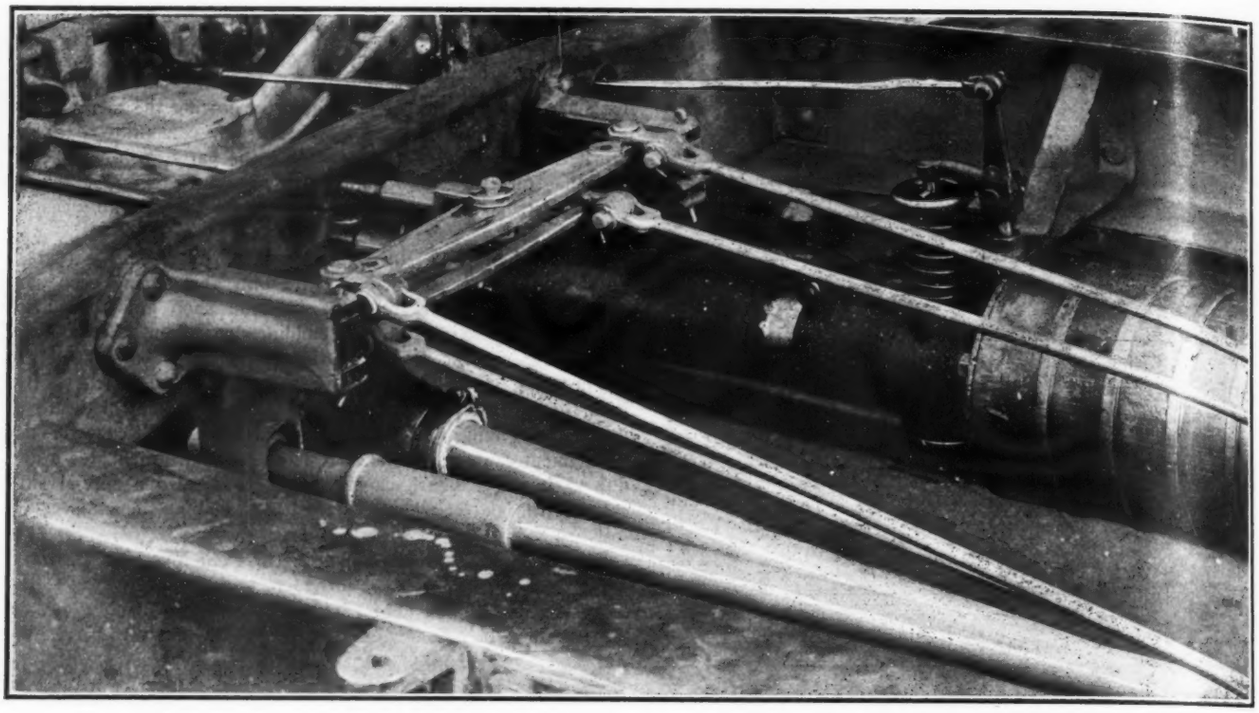


Fig. 1—Service and emergency brake linkage employed on the 1913 Premier models. Note mounting of cut-out

Premier Brings Out A Long-Stroke Six

Abandons Manufacture of Four-Cylinder Motors, Concentrating Attention on Two Six-Cylinder Models

WITH the announcement of the Premier little six for 1913 the company makes the statement that hereafter its attention will be devoted entirely to six-cylinder cars. The gradually increasing number of six-cylinder cars which this concern has had to build in response to the demand of the consumer has led to the abandoning of the four-cylinder type entirely, although service for the owners of previous models will be rigidly maintained. The first Premier six was placed upon the market in 1907 and the increase in demand for six-cylinder cars of this make has been steady even since that date.

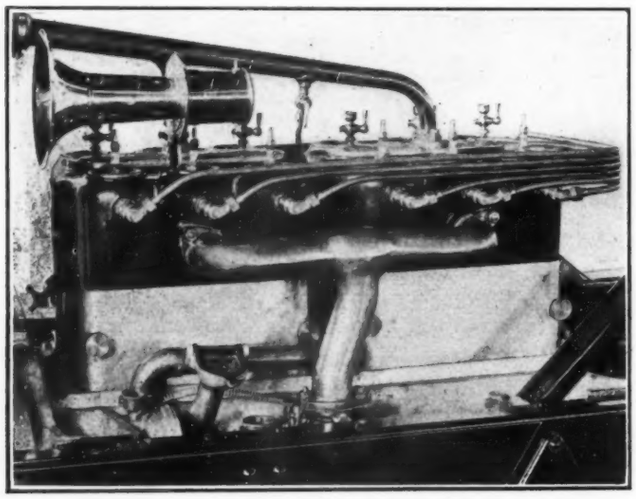


Fig. 2—Left side of little six with cylinders cast in threes

A study of the Premier product is interesting because of the great thoroughness with which the plans were laid to make the car easily kept by the owner in proper working condition. A study of the car reveals the fact that its maker has profited by its experience in reliability contests and is as well a tribute to the worth of rigidly conducted contests of this sort. The Premier concern was one of the early supporters of strict reliability contests and has used the information gained in such contests and in the results of bringing to the maker's attention weaknesses which might develop in guarding against weaknesses of assembly which would show up in use and in making all minor adjustments easy for the owner. This care is illustrated in the fact that practically every nut, bolt and screw throughout the car is permanently locked so that it is impossible for it to jar loose. There is still another point in which this attention towards easy maintenance is well illustrated and that is that on spring ends and all points where brake rods or other rods pass through the frame there are removable bronze bushings, easily replaceable in case of wear.

With this aim of easy maintenance in mind, let us look at the cars themselves. Premier cars for 1913 will appear in two models, both of them six-cylinder and known for the coming year as the Big Six and the Little Six. The Big Six car is the same car as was marketed as the model M-6 in 1912, with its motor, 4 1-2 by 5, cast in pairs, while the Little Six is a new model differing only in its motor size and arrangement and in chassis dimensions. The only change of importance in the Big Six over this year's construction is in the steering-rod connections, which instead of the ball joint used previously will be a universal joint arrangement.

The general design of Premier cars embraces a two-unit power plant consisting of a T-head six-cylinder motor and multiple disk clutch as one unit, and a three-speed sliding gearset as the other unit; a three-quarter floating rear axle and an I-beam front axle and heavy channel frame.

The motor of the Little Six has cylinders 4 inches in diameter by 5 inches stroke, and practically the same construction is used as in the Big Six except that with a smaller bore and cylinder three cylinders can be combined in a unit so that the cylinders are cast in triplets. This permits placing the three cylinders close together, making a minimum distance between end bearings and center bearings.

As with the Premiers of the past the cylinders are cast with large opening in the top of the waterjacket which is covered with a light aluminum plate. The reason for such an arrangement is that it makes the foundry work more uniform so that the thickness of the cylinder and jacket walls would be the same throughout. This also makes possible the removing of lime deposits which may accumulate from the water circulation and the makers have found that this light plate will, as a rule, give way when the motor is allowed to freeze up and will thus save the cylinder. After being cast the cylinders are pickled to remove core sand, then rough machined, heat treated to relieve the internal strains, bored, enameled and finally ground. The bore is said to be accurate to within .0005 inch. The pistons are of gray iron and the clearance between piston and cylinder is .003 inch. Each piston is fitted with three rings, which are individual castings to give increased spring and life. The connecting rods are I-section drop forgings with large bearings, the crankshaft is machined from solid drop forgings. The engine base is made of a close-grained semi-steel said to correspond to that used by the government in army coast defence mortars. The reason for using this particular material is that it is well adapted to hold thread and retain alignment, at the same time thin walls may be used with a weight but slightly greater than aluminum. The lower half of the crankcase, as an oil retainer, is aluminum.

Lubrication of the motor is a circulating system with constant level splash maintained by a gear-driven gear pump. There is a sight feed glass on the dash, located in plain view, by which the operator may watch its action. In the lower half of the crankcase are molded transverse troughs. These have partitions between them so that the dippers on the ends of the connecting-rods dip into oil on any grade below 27 per cent. The oil which overflows from the troughs drains into the reservoirs in the rear and is again forced back into the troughs, thus constituting the circulation. To the lower end of the

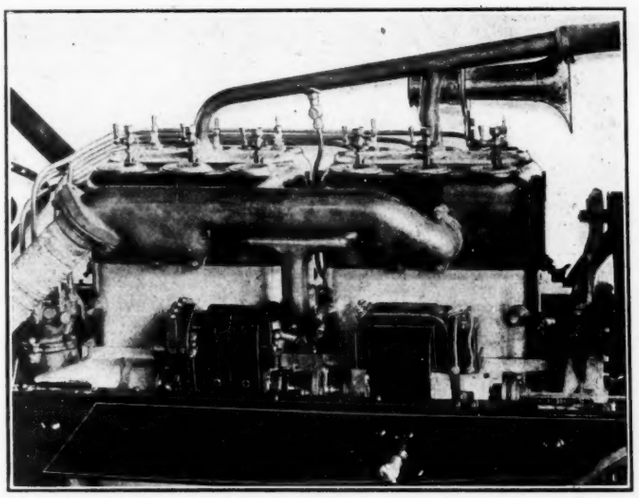


Fig. 3—Right side of little six motor, showing magneto mounting

connecting-rods are screwed brass tubes which dip into the trough and throw the lubricant up into the cylinders. The oil is supplied through a filler pipe and breather in one arm of the crankcase and its height can be judged by a petcock in the side. Pockets in the bearing journal catch the oil and feed it direct to the bearings through oil holes.

The valves are completely inclosed and the push-rods have rollers 1 inch in diameter which are ground inside and out. The push-rod guides are die cast bear metal and are held in place by a forked clamp which, when loosened, permits two of them to be removed at once.

The cooling of the motor is by means of a gear-driven centrifugal pump and honeycomb radiator. The water is introduced at the lowest point of the waterjacket and comes out at the highest point. The pump is provided with a space on the outside of the plate so that if the pump were to become disabled the superheated water would naturally rise and the circulation would continue in a reasonably satisfactory manner. In other words, it is a combination pump and thermo-syphon

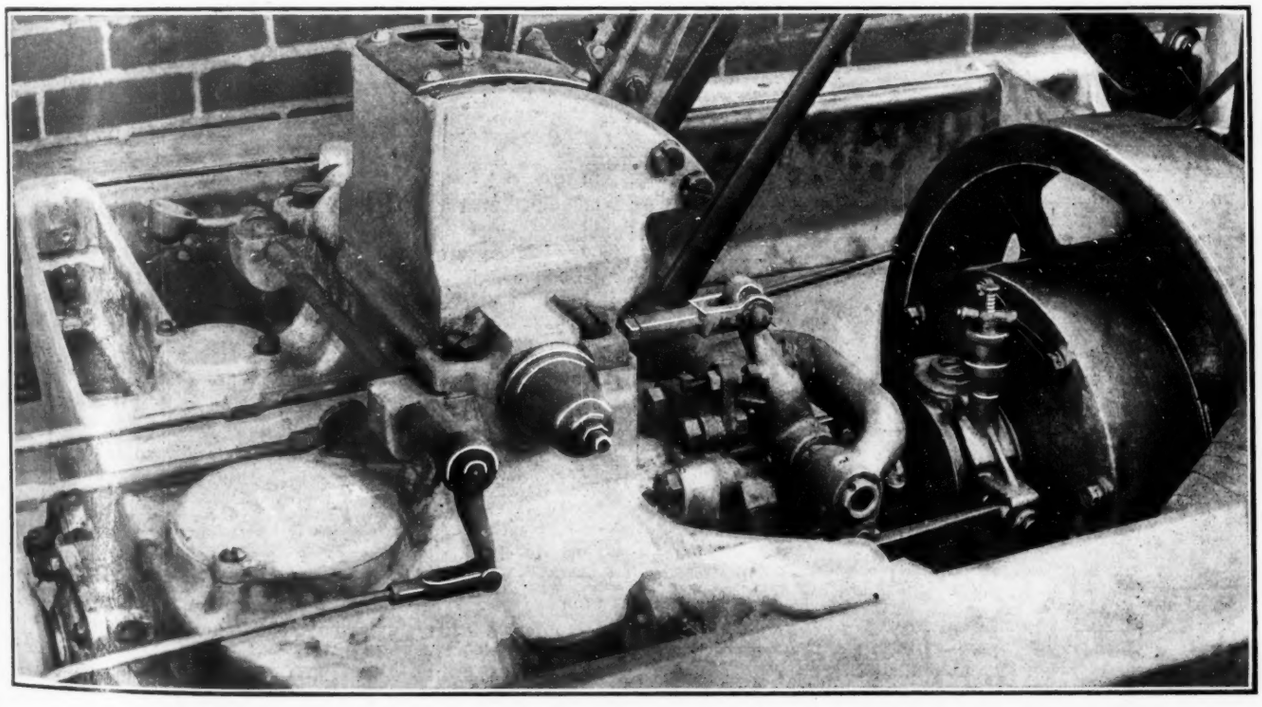


Fig. 4—View of the gearset, control mechanism and clutch, showing oiling and adjustment points and suspension

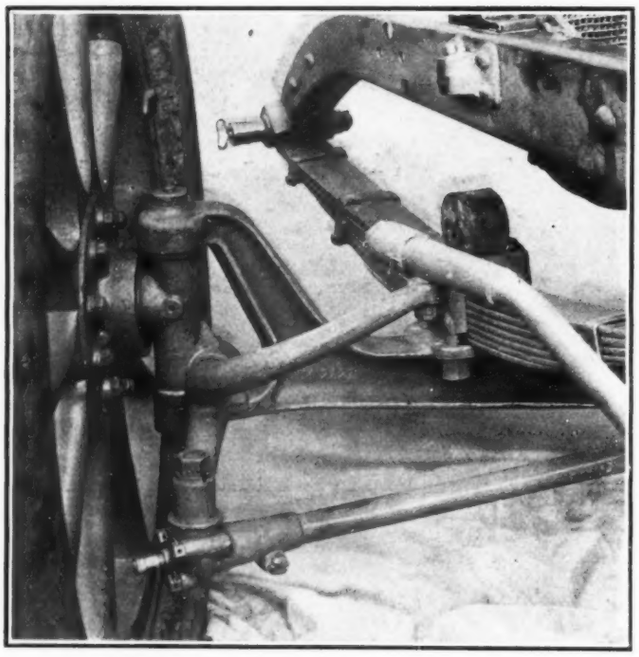


Fig. 5—Steering gear connections on left wheel of Premier six

system. In addition to the radiator there is a belt-driven fan immediately behind it which is driven from a pulley on the end of the pump shaft. The support of the radiator is unique in that it is rigidly fastened to the frame on the right side, while on the left side it is mounted on a trunnion to protect it from strains due to twisting of the frame.

Ignition is obtained by an Eisemann magneto located on the left side just behind the pump and driven from the pump shaft in the case of the Big Six and on the right side on a special gear in the case of the Little Six. On this shaft also is the magneto type electric generator which provides current for the electric lights. In the Little Six there is interposed between the magneto and the generator a fiber coupling. The lighting system consists of a ball bearing Remy magneto generator and a battery floating on the line. The generator delivers current at a pressure of 12 volts to a three-wire circuit so that 6-volt lamps are used. The system is designed to carry 68 candlepower of lighting load in the generator at a car speed of 8 miles per hour. All wiring is run through leaded cable.

Premier cars are made self-starting by means of a compressed air system consisting of a small pump on the gearset countershaft and a storage tank and lastly a distributer feeding

Fig. 7—View into the interior of the 1913 touring tonneau

to six ball check valves, one in each cylinder. On pressure on a foot valve in the driver's compartment air is admitted through the distributer to the cylinders in the order of firing so that the pressure forces the pistons down until the motor takes up its regular cycle. The pump is the single cylinder with air cooling flanges and has a bore of 1 5-8 inches and a stroke of 2 1-4 inches. There is an air gauge, shown at A in Fig. 4, and it is stated that a pressure of 50 pounds is sufficient to turn the motor over for starting.

The clutch is multiple disk running in oil. It has twenty-one plates, the alternate ones having cork inserts to prevent gripping. The plates have four lugs extending from their circumference and on these are attached small coil springs S to facilitate disengagement of the clutch. To make easy the removal of the clutch the shaft between it and the gearset telescopes when a collar is released. The clutch release consists of a bronze collar carrying two annular bearings which work against hardened steel disks, this being part of the release clutch cone.

Thre three-speed gearset is in an oil-tight aluminum housing which has four arms attaching it to the subframe. The gears are cut from nickel steel drop forgings and the shafts run upon five annular ball bearings. At either end of the mainshaft within the case are plates that throw back upon the gears any grease that tends to ooze out. The entire power plant is mounted upon a subframe of channel form, which is bolted to the main frame in such a way that it forms a complete box for the forward portion of the chassis. The gearset control is mounted immediately over the gearset housing so that the lever is in the center of the driver's compartment, as shown in Fig. 10.

Power is delivered from the gearset to the rear axle by shaft equipped with two combination slip and universal joints packed

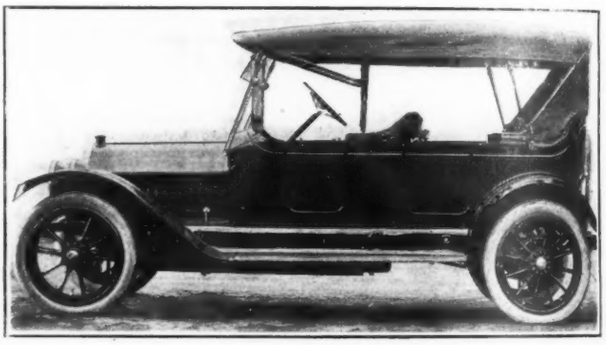


Fig. 6—Premier little six five-passenger touring car with top

in grease. The universal joints embody a feature of Premier construction at the ends of the propeller shaft. These are tapered squares which fit into tapered square holes in the universal joints in order to do away with keys and key-ways. The torsion rod is of the V-type of tubular construction and the front end is retained in a spring cushion ball joint.

The rear axle is a Premier patent and is of what may be called a three-quarter floating type. It has an internally ribbed center housing so that truss rods are dispensed with. The differential is of the bevel gear type and upon it is mounted the main driving gear. Through hand holes in the rear of the housing the gear may be adjusted laterally to take up wear. Correspondingly the pinion which transmits the rotary motion of the driving shaft to the axle gear is adjustable longitudinally so that with these two adjustments the gear can be made to mesh properly should it be necessary to change their setting. There are eight anti-friction bearings in the rear axle. Roller thrust bearings on either side of the differential, annular bearing at the outer end of the axle shaft, and four bearings in connection with the pinion, two of which are thrust bearings. At the ends of the axle housing are the brake supports rigidly attached and hot riveted. The brake drums are integral parts of the wheel hubs. The live axle shafts are square at the inner end to fit into

the differential and at the outer ends are provided with three clutch jaws forged integral with the shafts themselves. These engage with three corresponding clutch jaws in the hubs of the wheels through which the drive is transmitted. The brake drum is an integral part of this clutch and hub arrangement, and the wheel is bolted to it with a bolt through each spoke. An annular ball bearing is placed in the load carrying center of each wheel. The rear axle housing itself is in four parts, the center or bell being a crucible steel casting and the taper tubes are forgings riveted to the center.

Braking surface on a Premier car represents a total of 526 square inches, and the fact that the brake drums are integral with the wheel hub makes the braking action positive. The internal brakes are operated by a foot pedal and are steel bands covered with raybestos. The emergency brakes are external and are of the same construction. Full adjustment of both brakes can be made by lifting a floor board under the driver's feet, which gives access to a turnbuckle on brake rod. Additional adjustment is provided by a take-up on the rear end of the rod, which can be done without removing the brake. Equalizing bars anchored to the center of the center cross-members of the frame assures equal pressure on both wheels.

Semi-elliptic springs are used on the front, each 36 inches long, and three-quarter elliptic on the rear with the bottom section 50 inches long and the top 26 inches in length. The forward ends of the lower leaves of the half springs at the rear are longer than the others and are curved under to cushion the blow if the spring strikes the rubber bumper. The front springs in addition to being held by spring clips have drop forged plates binding the leaves at the center. The rear corners of the channel frame are braced by pressed steel channel sections and small

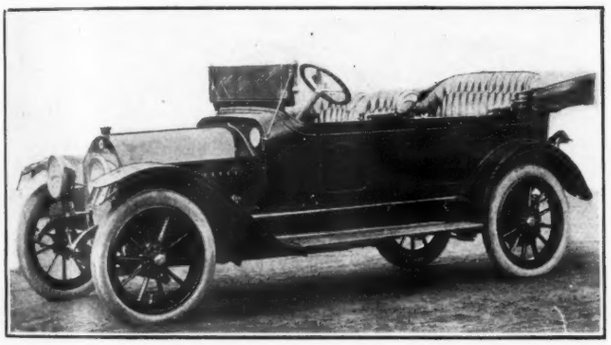


Fig. 9—Five-passenger touring car mounted on little six chassis

gusset plates. At the front there are integral gusset plates extending down to the radiator supports.

Premier steering gears are unique in one or two respects. In the knuckle design the load-carrying center has been brought close to center line through the king bolt constituting the steering center. Truss bearings are used in the top of the king bolt to carry the vertical load and the bottom held in hardened and ground bushings. New this year is the ball connection between the tie rod and the steering arm. This is illustrated in Fig. 5. The steering rod has universal joint connection in place of the usual ball type and is illustrated in Fig. 5. The steering gear itself is of the irreversible type with full gear and worm. This gear travels less than one-quarter of its circumference in any one position of adjustment and in case of wear can be shifted one-quarter of a turn. A further adjustment is provided between the worm and the gear by an eccentric bronze bushing within which the shaft is mounted. The steering column is mounted on the left side.

Notable among the features of the Premier 1913 cars is the clean appearance of the body, tool boxes, battery boxes and similar equipment being removed from the running board. The mahogany cabinet in the deep cowl of the dash has been provided for carrying tools; the battery is suspended in the front of the

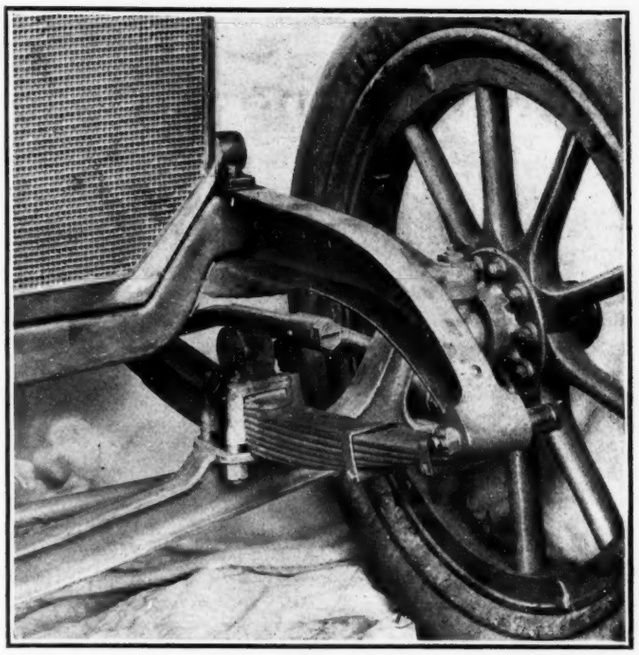


Fig. 8—Front semi-elliptic spring, showing radiator mounting

car and the spare tire carried at the rear. The bodies are of the true straight-line appearance and the door hinges are concealed. The upholstering is unusually deep, the seat springs consisting of a double row of coils, one above the other, with a wire partition between the two. The bodies are of metal and the rear fenders are bolted to flanged projections from the body.

One of the most commendable features of the equipment is the arrangement for filling the gasoline tank. The latter is located below the front seat and the filler pipe opens between the two seats so that access is gained to it by simply lifting up the seat arm. This obviates the necessity of removing the cushion and seat bottom to fill the fuel tank. Behind the filler pipe is a space for small tools, and so on, which is open when the seat arm is raised.

The lighting equipment consists of electric headlights, bull's-eye port dashlights and a combination tail lamp and license plate holder mounted on the left fender.

The Premier Little Sixes appear in roadsters, five-passenger touring, limousine and berline bodies, while the Big Sixes appear in the touring, roadster and limousine bodies. The wheelbase of the Little Six is 132 inches and that of the Big Six is 140 inches.

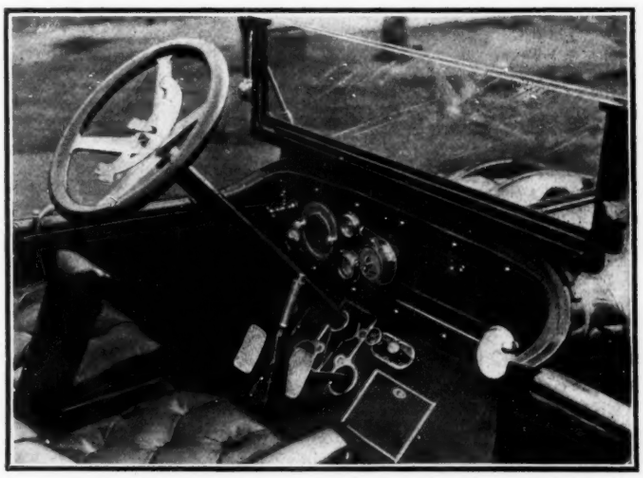


Fig. 10—Left steer and center control used on 1913 Premier

Chicago Show Spaces Assigned for 1913

N. A. A. M. Has Drawing for Pleasure Car and Commercial Vehicle Shows to Be Held Next Year—Eighty-two Gasoline Car Exhibitors—Pleasure Electrics Given Block Space in Armory—All Room Taken

OFFICIAL drawing took place this afternoon at the headquarters of the National Association of Automobile Manufacturers for the Chicago pleasure car show and also for the commercial car show to be held following the pleasure show. As formerly, the Coliseum, Coliseum annex, Coliseum basement and First Regiment armory will be used for both shows. Eighty-two car concerns have already received space and three-quarters of the center space of the armory has been reserved for electrics which have not yet drawn. In the main floor of the Coliseum are 39 exhibitors; in the Coliseum annex, 8; Coliseum annex basement, 17, and armory, 18.

In the Coliseum the exhibitors are arranged in four central spaces and also around the wall as formerly. To the left of the center aisle on entering are Peerless, Flanders, Pierce and Haynes, and on the right of this aisle from the entrance are Glide, Buick, Cadillac and Maxwell. Other center floor exhibitors are Stevens, Stearns, Winton, Stoddard, National, Hudson, Packard, Premier, Reo, Franklin, Locomobile, Studebaker, Oldsmobile, Pope, Chalmers and Overland. Around the coliseum walls or under the gallery are: Selden, Columbia, Auburn, Rambler, Fiat, Marmon, Alco, White, Cole, Case, Imperial, Mitchell, Moon, Oakland and Lozier. In the Coliseum annex are American, Kissel, Cartercar, Knox, Velie, Inter-State, Hupmobile and Garford. In the basement of the Coliseum annex are: Colby, Patterson, Halladay, Lexington, Cino, Midland, Ohio, Crow, McIntyre, Cunningham, Edwards, Herreshoff, Republic, Metz, Bergdoll, Davis, Elkhart and Mercer. In the First Regiment Armory are: Jackson, Austin, Matheson, Abbott, Michigan, Regal, Cutting, Kline, Pathfinder, Staver, Pullman, Krit, Westcott, McFarlan, Great Western, Stutz and Speedwell.

For the commercial car exposition spaces were assigned to the following companies:

Coliseum, center: Buffalo Electric, Jeffery, Studebaker, Reo, Selden, Autocar, Waverley, Adams, KisselKar, Speedwell, International, Cramm, Pope, Locomobile, Pierce, Velie, Buick, Peerless, Federal, Hupmobile, Kelly.

Coliseum, along the walls: Durable Dayton, Sternberg, Alco, Walker, U. S. Motor Truck, Garford, Rapid, Reliance, Knox, Krebs, Old Reliable, Clark, McIntyre.

Coliseum Annex: Bowling Green, Universal, Service, Standard, Transit, Dart, M. & P. Electric, Lippard-Stewart.

First Regiment Armory: Chicago Pneumatic, International Harvester, National Motor Truck, Sanford, Commerce, Four-Wheel Drive Truck, Gramm-Bernstein, Poyer, Bessemer, Harwood-Barley, General Vehicle, Avery, Packard, White, Alden-Sampson, A. L. Smith, Lauth-Juergens.

Boston's First Electric Show

BOSTON, MASS., Sept. 28—Boston's long-heralded electric show opened here tonight and the old hackneyed expression "a blaze of glory" was really a fitting one to describe it. For a distance of about a mile on Huntington avenue there are flaming arcs on each side of the street, there being 216 of these so that persons traveling along find themselves walking through a lane of brilliancy never before equaled in Boston. On the outside of Mechanic's building where the show is being held there are 45,000 lights of varying hues. Inside the building there are 200,000.

For the first time in motor history electric motor vehicles have a chance to make a comprehensive display. And the Boston representatives of these machines have taken advantage of it. In the regular motor shows the electrics were not numerous, and some of them were somwhat scattered. Now, however, for a month they will occupy the most prominent section of the electric show. Had some of the newer agencies been placed earlier all the electric pleasure vehicles would have been together. But when one looks over the list he finds that they are nearly all there.

There are sixty-two machines in the building now, and a few more may be brought in early Monday so that the total may reach seventy when the show is well under way. Of this number there is a very close division between pleasure and commercial types. More than 10,000 thronged the building, and with a month to run and special rates on the railroads from all over New England, the show should prove a success.

Two Shows for Montreal

MONTREAL, QUE., Sept. 27—That this city will see two automobile shows during the coming winter seems now assured the preliminary arrangements having been completed for the holding of the Montreal Automobile and Motor Truck Exhibition in the Drill Hall, January 25 to February 1, 1913, in addition to the one to be run by Mr. Wilcox, of Toronto. The last-named exhibition is to be conducted by and under the auspices of the local automobile dealers.

New Financing in Automobile World

Automobile and accessory incorporations of major size that were formed during September, include the following:

New York—	Capitalization.
($1,000,000 or over.)	
Motor and Gear Improvement Company	$1,250,000
Rondout Rubber Company	1,000,000
California—	
Michigan Motor Car Company	1,000,000
(Under $1,000,000.)	
New York—	
Continental Motors Corporation	100,000
Englebert Tire Company	100,000
Fiat Motor Sales Company	300,000
Simplex Carbureter Company	150,000
Selden Truck Sales Company	150,000
Delaware—	
Flanders Motor Company (change from Everitt) increase	750,000
L. A. W. Motor Truck Company	200,000
New Jersey—	
Reliance Speedometer Company	100,000
National Chauffeurs' Association	500,000
Maine—	
Co-operative Rubber Company	500,000
Handt Tractor Company	350,000
Ohio—	
Federal Motor Supply Company	250,000
Illinois—	
Universal Welding Company	100,000
Total	$6,800,000

Most of the companies mentioned in the foregoing list are concerns already in operation under some former shape. A few of the incorporations referred to are simply changes in the form of business organization. Some of them, as will be noted, are only incidentally connected with the automobile industry, but there are a few that represent entirely new enterprises.

Y. M. C. A. Hears Talks on Trucks

Introducing the opening of a truck drivers' instruction class by the New York West Side branch of the Y. M. C. A., the members of the association listened to two talks by experts on the

subject on September 26. William C. Mack, the designer of the Mack truck, lectured on the possibilities of the motor truck, dealing in a concise way with the development of the commercial vehicle and illustrating his remarks by a large number of interesting stereopticon views. He was followed by George H. Duck, the manager of the New York Alco branch, who spoke on the opportunities of the truck driver. He showed how the number of commercial vehicles had increased rapidly during the past 2 years and dwelt on the probability of the continuance of an equally active increase. He stated that one of the largest factors in the success of a motor truck is the driver, and that consequently the good driver should be encouraged by appreciation of his good work, both in the way of better compensation than the bad driver and by a record of the maintenance cost of his car. He foreshadowed the use of a detailed record system for trucks and spoke of the advantages to the driver who puts his truck to good use. After he had closed, applauded as Mr. Mack, the audience was transported on a sight-seeing truck to the new department of the Y. M. C. A. in West Sixty-sixth street.

Dates Set for Electrical Show

The sixth annual New York Electrical Exposition and Automobile Show will be held at the Grand Central Palace, October 9-19. Three floors will be used for the exhibition which promises to be the largest and most complete of its kind ever held. Trucks will be the feature of one section of the show and pleasure cars of nearly a score of types will be exhibited in another. On the third floor, a track 1-10 of a mile around will be installed for demonstrating purposes and for the instruction of customers. The electric vehicle companies that have contracted for space so far include the following: General Vehicle Company, General Motors Truck Company, Buffalo Electric Vehicle Company, Anderson Electric Car Company, Lansden Company, Studebaker Automobile Company, Atlantic Vehicle Company, Baker Motor Vehicle Company, S. R. Bailey Company, Champion Electric Vehicle Company, Cleveland-Galion Company, Ward Motor Vehicle Company, Edison Battery Company, Electric Storage Battery Company, Philadelphia Storage Battery Company and the Gould Storage Battery Company.

Ohio Farmers Buying Cars

COLUMBUS, O., Sept. 28—According to the statistics furnished by State Registrar of Automobiles J. A. Shearer, the rural sections of Ohio are buying automobiles as never before. The wheat and oats crop is being rapidly converted into motor cars as is shown in the number of applications for registration coming from the rural counties.

Of the licenses issued now about 80 per cent. come from the strictly agricultural communities. In Madison, Miami, Pickaway, Ross, Fayette, Licking, Montgomery, Fairfield and other rich agricultural counties the elevators are fairly bulging out with grain and automobiles find a ready sale.

For the first half of September the number of new automobiles registered was over fifty per day. The rule in farming sections now is early selling of grain and this aids the automobile trade.

1913 License Plates for New York

ALBANY, N. Y., Sept. 28—Automobile license number plates being issued by the New York State automobile bureau next year will be different from those now being used. Besides the figures "1913," indicating the year in which they are issued, the new plates will have the word "commercial" on plates intended for commercial motor vehicles. The state's charge for a "commercial" license is $5 while from $5 to $25 is charged for pleasure vehicles, according to horsepower of machine. Heretofore automobile owners are said to have secured pleasure plates at commercial car rates, thereby saving many dollars. Manufacturers' plates used by dealers will continue to bear the letter "M," as in past years.

Rubber Show Is Success

Third International Exposition Concludes By the Sale of the 150 Tons of Crude Rubber Exhibited

Amazonas Wins Chief Award for Wild Rubber While British Malaya Takes Plantation Prizes

DESPITE a few jarring notes the great rubber exposition ended this week in a burst of harmony. The attendance during the 10 days of the show was excellent from the viewpoint of the rubber men but would have been considered microscopic for an automobile show. It made up in quality what is lacked in quantity, according to those most interested.

The show was primarily one of crude rubber, but the original intention of the promoters was to have broadened its scope so that manufactured goods would constitute one of the most attractive features. This plan contemplated a full exhibit of automobile tires. With that end in view, contracts for space were tendered to the various major tire manufacturers and according to A. Staines Manders, organizing manager of the exposition, the contracts were accepted by several concerns.

Mr. Manders states that he obtained written word from the Motor and Accessory Manufacturers that the organization as such would not take jurisdiction of the exposition in the same way that it does of the national automobile shows and that there was nothing in its rules to prevent any of its members from exhibiting.

He states that contrary to the meaning of the letter, the association did take action to prevent the tire makers from showing and that at least one big company shipped its wares to the show but did not install them on account of the later ruling.

The association stands by its former letter and states that as far as it is concerned the tire men could exhibit if they pleased.

The result of the matter was that there were no tires shown at the exposition and the companies insist that the representations made to them when they were solicited to take part were that others in the trade had taken space; therefore the particular company should do likewise.

The United States Rubber Company had a magnificent booth on the main floor but showed no tires; the Swinehart Tire and Rubber Company had a booth but showed no exhibit. The United States Rubber Company declares that it never had any intention of showing tires and the Swinehart company says that it did not want to install its exhibit as long as its competitors were not showing.

But aside from that little jam, the proceedings passed off smoothly. The final act at the show was the sale of the crude rubber that formed the exhibits of various countries, amounting in all to about 150 long tons. The sale was not an auction as the bids were submitted under seal.

The Brazilian state of Amazonas was given the chief award for an exhibit of wild rubber for its 30-ton heap of Madeira and British Malaya was given the principal prizes for plantation rubber shown.

Ontario's Registration Large

TORONTO, ONT., Sept. 30—Ontario's revenue last year from the sale of licenses for motor vehicles totaled $50,831.25, twice the amount received during the year 1910, which was $24,394. The revenue for 1906, the first year fees were imposed, was only $15,235.15. The licenses issued last year totaled 11,339, and for 1910, 4,230, while in 1906, 1,176 licenses were issued. Fees collected for issuing charters to automobile corporations totaled $235,663.10.

Road Congress in Session

Over 600 Delegates Present and More Coming—Stress Laid on Automobile As a Good Roads Factor

ATLANTIC CITY, N. J., Oct. 2—The 6-day annual convention of the American Road Congress opened on Million-Dollar Pier Monday, September 30, and will continue until Saturday, October 5, with three sessions daily. Over 600 delegates from all parts of the United States and Canada have registered to date and many more will arrive before the end of the week.

The first 2 days were given over entirely to the automobile interests, being known as Road Users' days and conducted by the American Automobile Association which arranged the program and conducted the sessions. The remainder of the week is given over to various road building organizations; Wednesday's sessions are under the direction of the American Association for Highway Improvement; Thursday is financial day in road building; Friday is construction and maintenance day and Saturday is also given over to this department.

Monday and Tuesday's programs included addresses on national systems of marking roads, automobile state laws, the farmer in road making, working state aid, federal aid, transcontinental highways and business organizations in road building.

The necessity of business activity in medium-sized cities in building modern roads from these cities into the surrounding country was emphasized by G. Grosvenor Dawe, of the Chamber of Commerce of the United States of America. Mr. Dawe showed how within the last 15 years such city organizations had actively taken up the problems of real road building and cited scores of cases of what had been done, concluding with that "Improved vehicular transportation, which finds its highest form in the automobile, and the rapid development of commercial organizations cover practically the same period of time—15 years."

Mr. Dawe said in part:

Commercial organizations, in practically every town of any size, are helping along the good roads cause in some effective way—by instigating legislative action, by educational campaigning, by co-operation with state highway commissions by appointing special committees to investigate road conditions, by holding good roads rallies and by distributing literature urging activity for good roads.

The common sense of the situation that has been recognized in rural regions as soon as presented to their consideration by commercial organizations is that good roads must lead somewhere—good roads must be provided for the main lines of travel—the main lines of travel must, in all cases, be toward a market as represented by a good-sized town or a shipping point. Consequently, apart from the improvement of a few scenic highways, the efforts of commercial organizations in the past few years have been utterly practical and have brought immediate return to the country region through increased value of land, through ease of marketing, and through economy of traction.

When I come to detailing all these activities, I am embarrassed by the varied forms of these activities and embarrassed also by the fact that I can not tell you one fraction—in the time allotted to me—of what has been done. I can simply place before you a few activities of unusual interest and ask you to assume that other activities are common the nation over. Let me refer to what has been done in Meridian, Miss., as a type of the effort to link the producing country region with the consuming city. Through the activities of the commercial organization, the Board of Trade, the city of Meridian is now the hub of an arrangement of roads like the spokes of a wheel. In eight directions highways have been improved for a distance of 5 miles. The material used for every yard of the whole distance was novaculite, imported from Illinois.

In a unique undertaking in Ellis, Kan., the Commercial Club brought men together and completed on good roads day the working of all roads leading into the city.

Another example of commercial organizations actually working roads in Kansas was that of the 6-mile road leading from Linn to Palmer in Washington county. All labor was given free; there were 150 men, fifty-seven teams and two traction engines at work. The state engineer furnished a man to superintend the work and give personal attention to the building of 1 mile of model road. The two commercial clubs of these towns had the hearty co-operation of the business men and the highway officials.

The Manhattan, Kan., motor club recently held a similar meeting, and has created excellent results by giving a road drag free to each farmer who will agree to keep a piece of road in shape. There are now 100 such road drags in operation near Manhattan.

A number of organizations have been the instigators of good roads legislation. The state good roads association of Florida has prepared a bill to be presented to the Legislature in April, providing for a commission on good roads, to work out a state plan for covering the entire state with a network of hard-surfaced roads.

The Charleston, W. Va., Chamber of Commerce has appointed a committee of seven men to draft a state-wide good roads bill to be presented to the next legislature.

In Massachusetts several of the larger road problems have been advocated and pushed by the various boards of trade, as for instance, the North Adams board of trade was very strongly in favor of the new highway over Florida mountain and the legislature has just appropriated $150,000 for this purpose. Massachusetts now boasts 879 miles of state roads, built in 20 years at a cost of $8,000,000 and over.

The board of trade of Indianapolis is co-operating with the Indiana good roads association in placing before the legislature a bill providing for more effective legislation in connection with good roads.

The Oregon development league and the Portland commercial club have for several years been very active in their endeavors to secure much needed legislation. Both organizations are now backing an initiative road measure to be submitted to the people at the general election in November.

The majority of commercial organizations have done most effective work in this line by co-operation with commissions, either in the government or composed of business men united in the one purpose of securing good road conditions.

Assembly of the delegates from all parts of the state of Illinois to the convention of the Illinois Highway Improvement Association influence in pro

Illinois Road Men Meet

Substantial Results Expected from Convention of Highway Improvement Association Attended by 250

PEORIA, ILL., Sept. 27—Immediate and radical steps toward a comprehensive system of improved highways are almost certain to result from the action taken today by the Illinois Highway Improvement Association in which all parts of the state were represented in convention. A fixed policy was outlined and adopted looking to a general method of procedure for the future and special action to be taken in the next meeting of the legislature. The association in a platform which was unanimously adopted, went on record as in favor of and recommending a state highway commission to devote its entire time to road construction and maintenance throughout the state, improvement by state aid of main thoroughfares through the county by the commission to be turned over to the state for perpetual maintenance; employment of prisoners in road building on an honor system similar to that employed in Colorado; a compulsory dragging of all dirt roads and the payment of all road taxes in cash with the use of the state motor car tax, together with any other funds appropriated in the improvement of highways; federal aid in the construction and maintenance of post roads and transcontinental highways; an annual good roads day to be designated by the governor, and federal aid in building interstate roads.

The report of the committee on policy sets forth that Illinois, foremost among the states in American resources, finds her general welfare retarded by a system of wretched public highways constructed, maintained and administered under a method in vogue centuries ago, which is unadapted to the problems presented by modern traffic and out of harmony with the advancement of the state in other directions. A great network of 95,000 miles of country wagon roads is left to the haphazard work of 4,800 commissioners working independently of each other, poorly paid, largely inexperienced, and provided with inadequate funds.

B. F. Harris, president of the Bankers' Association, announced that the 4,800 road commissioners in the state at present have 4,800 different ways of wasting the taxpayers' money.

Careful investigation has shown that of the $7,000,000 expended annually on the wagon roads of the state approximately 37 1-2 per cent. is wasted, and in some townships a much greater percentage is spent without permanent benefit. Highway improvement is no longer purely a local matter but one in which the citizens are interested to such an extent that the state should assist in solving the problem which the bad roads present to the people.

The recommendation of the committee on policy, which was unanimously adopted as the platform of the Illinois Highway Improvement Association, are as follows:

1. State and county co-operation in the construction and maintenance of main highways and bridges.
2. A non-political state highway commission of at least three competent members, who shall devote their entire time to their duties.
3. Improvement (in such counties as elect to come under the provisions of the law) of main, continuous, in county highways connecting county seats and important cities, principally at the expense of the state and county; such roads to be selected and improved by county authorities, subject to the approval of the state highway commission and after improvement to be turned over to the state for perpetual maintenance.
4. Improvement, maintenance and control of remaining roads (about 80 per cent. of the whole) under supervision of county and township authorities.
5. Effective measures to guarantee maintenance after roads are once constructed.
6. Use of the state automobile tax, together with all other funds as the legislature may appropriate, in the improvement of highways.
7. Extension of the employment of prisoners in state institutions in the preparation of material for road building, and the use of state prisoners —under state direction—on an honor system, in actual work when practicable.
8. Payment of all road taxes in cash.
9. Compulsory dragging of all dirt roads.
10. Safety of road users, such as "Rules of the Road," and the proper construction and guarding of crossings at railroads and intersection of streets and highways.

We favor federal aid in the construction and maintenance of post roads and national highways, and we request representatives of Illinois in Congress to work towards this end.

About 250 delegates from all parts of the state were present at the convention, representing all the varied interests of the commonwealth. All of the associations of business men, laboring men, automobile organizations, bankers' associations, chambers of commerce and agricultural granges were represented by delegations. Several of the larger cities sent large delegations of good roads boosters.

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...h met last week at Peoria. About 250 delegates were present at the session, which is expected to have a widespread and increasing ...g better roads

Explains National Chamber of Commerce

H. A. Wheeler Tells Trade Press of the Foundation, Work and Purposes of New Organization

Independent Institution Aims at International Unity and Co-Operation in Commercial Affairs

NIAGARA FALLS, N. Y., September 27—Harold A. Wheeler, president of the recently organized Chamber of Commerce of the United States of America, today addressed the members of the Federation of Trade Press Association here on the organization and scope of this new power which has recently entered American commerce, and gives promise of being one of the most potent factors for good in our business atmosphere. President Wheeler had just come from Boston, Mass., where he was in attendance at the International Congress of Chambers of Commerce in which Europe, Asia, Africa and the Americas were represented with the aim of studying to promote international unity and co-operation in commercial affairs, and where 700 delegates from all parts of the world acknowledged by their attendance the interlacing of the commercial interests of all lands and where they pledged themselves on return home to petition their respective governments to substitute arbitration for warfare.

President Wheeler prefaced his remarks on the newly organized Chamber of Commerce of the United States of America by referring to the unity of world-wide action in commerce, following the examples of Germany, France and England in national commercial organizations. He said in part:

"We, in this country, have organized our chambers of commerce as individual units. We have them on the Pacific coast and through the Central and Southern states and through the East, hundreds and hundreds of organizations representing the civic and the commercial interests of a community or a state, and supplementing them we have the great national trade organizations, but in every single instance working for a specific trade or for a distinct community and in no way representing by a common voice the business demands of the country as a whole, either to safeguard them from adverse legislation or to develop those things which will make the pathway of business easier and promote a greater unity among the several interests which make up our nation's commerce. The need was so apparent in this country that we should tie up our organization as they were tied up abroad, not as a governmental institution, because that would be in a large sense un-American, but that **we should so combine our trade and general organizations relating to commerce that they might take action as a unit and that when that action was taken it could be communicated to the executive or to the legislative branches of the government and find some degree, at least, of heed; whereas in the past, as individual units, we have gone in vain for those things that we were justly entitled to.** Germany many years ago, after its federation was completed, took the old French idea and formed its chambers of commerce in every state and gave them the official sanction of the German Empire and gave them official duties with respect to the appointment of certain classes of public officers, and requested, and in fact required, that wherever it was found that one state was being adversely affected by competition with another state, either one of the German federation or a foreign state, the cause of that adverse effect should be studied by the chamber of commerce there represented, and the conclusions brought to the government, and the government acted in such a way as to preserve the prosperity of that particular line, or those particular lines, of business. That is the kind of co-operation Germany has given to her manufacturers, and that co-operation has meant the rapid spread of German products over the entire civilized world. France is likewise organized, and Great Britain is likewise organized, although not with official recognition in the matter of appointments or the matter of special governmental advice. We, in this country, have held to the idea that individual units could take care of themselves. You know the result.

"James Wilson, a member of the Federal Council, at the time of the charter convention, when the constitution of the United States was under consideration, said that there are two bad forms of government, the one that has too little power, the other that has too much; the one that fails because of its weakness, the other that destroys because of oppression. In this political campaign that is now going on it makes me sick at heart that it seems only necessary for men traveling up and down the country to attack the industrial and commercial interests of our country to find the popular applause, and to observe that whenever they open their mouths to advocate an expansion of the powers of government to a point that would oppress to the degree of destruction, they have encouraged the people to applaud and to accept those sentiments until they have definitely raised class against class, and in the unthinking minds of the people at large have created a great barrier between the two great interests, the employer and the wage earner, that never should exist. Only the other day in one of our papers, in a discussion of these limitations of government, one of the candidates made the remark that we might use whichever philosophy we pleased, but if the limitations of the government were restricted it could lead only to a chaotic scramble in the industrial life of this country to eat each other wherever it was possible and in all cases to oppress the wage earner, placing the whole industrial life of this country in that category of unrighteous organizations or institutions formed only for the purpose of destroying each other if they could, but above all things for absolutely oppressing those dependent upon them for a living. **I say to you gentlemen of the trade press that it has come high time in this country when not only the trade press but the daily press should pay heed to this agitation that is going on and should endeavor in its power to stamp it out rather than to give space in its headlines on front pages to attacks that are as unjust as they are unfounded.** If the press of the United States were to disregard these statements that are unfounded and untrue, that are made only for the purpose of awakening an unnatural and an unreasonable prejudice in the minds of the people, these men would soon cease their campaigns along those lines and come down to saner and truer topics for discussion.

"The Chamber of Commerce of the United States was formed in April, 1912, and I am going to try to give you the reasons why it ought to be formed, some of the reasons for its existence, some of the efforts that it will put forth, as a guaranty of its future. We are not political, we owe nothing to the administration now existing and owe nothing to the administration that shall come, or to any administration that may follow, except loyalty as American citizens, but we are bound to reach the point in such changes where the accusation will arise. Invitations were sent to the known chambers of commerce and the trade organizations of the country, and 700 delegates, representing all but two states, all of the insular possessions and the American chambers of Berlin, of Paris and Constantinople, gathered in Washington on April 22 to discuss the question of forming this chamber, and it was determined that such a chamber should be formed. The organization was put into the hands of a committee representing one man chosen from every state and from each of the insular possessions and ten men chosen at large representing the trades of the country that were not located so that states could be designated as their domicile. That great company met together and outlined and framed and presented the tentative by-laws which should govern the organization during its first year or until its board of directors had occasion to change them. Those by-laws were presented to the congress then in session and unanimously accepted. It then came to a question as to what should be the control, and this same great committee of more than fifty men were made a nominating committee to choose nominees for a board of directors, and again they went into conference and brought names from all sections of the United States, nominating twenty-five men territorially, so that not one single section of this great country of ours should be unrepresented in the board of directors of the chamber. That board of directors, following the adjournment of the congress in Washington, met and elected its officers, and those officers, again, became members of the board ex-officio, one from the Pacific coast, one from the Central West, one from the East, one from the South, as vice-presidents, with the treasurer in Washington, and the president.

First of all we decided that not one dollar of public funds should be asked or accepted from the United States government in the building or the control of such a chamber, that no public officer should be permitted to hold a place upon its board of directors or its official staff, that the organization should be supported by the business men of the country,

and managed by them, clear of all political affiliations and of all accusation of preference, that its officers should forever be chosen from the territorial divisions that were established, giving to each division that representation which it deserved by its numerical strength; and in the new by-laws which have been framed, based wholly upon the tentative by-laws given to us by that earlier conference, we have ever kept in mind the fact that this democracy of control shall be truly held and that no action shall be permitted to be taken simply because even the board of directors, representing all sections, may agree, but that no question shall be acted on finally by the chamber until by referendum that question shall have been put back to every constituent member of the organization, and the voice shall be truly the representative voice of those who speak.

"No membership in this chamber can be had except by organizations. Therefore individual voice has been set aside forever. No question shall be considered by the organization save it is known by the board of directors to be a national question. No question can be submitted either to the annual or to special conferences, or between the conferences, except it comes by the authority of a constituent member after a discussion of that question within the association or board of directors of the association submitting it, and by a formal communication to the chamber setting forth that it is a question which it is desired to have action upon, the reasons for it and a brief giving the argument why it should be placed before the constituent members for their action. The board of directors thereupon take the authority to determine whether or not the question is national and whether it is right that it should be submitted to the constituent members. But if the board of directors shall decide that it is not a national question, properly one to be submitted to the constituent members, there is the right of appeal for the member proposing.

"What are the questions that are to be considered? These are the questions that are closely related to politics inasmuch as they are the basis of legislation. We will take up the study of state and federal regulation of commerce. In order that that study shall be carefully made there will be a group of twenty men chosen and given the responsibility of bringing back a report upon that subject. Five men shall represent the states west of the Rocky Mountains; five men shall represent the states east of the Ohio and Pennsylvania lines; five, those north of the Tennessee line, and five, those south of the Tennessee line drawn straight across from the other north and south parallels. These groups of five men will be located not in widely scattered communities but in one single center, in order that they may get together, that we may furnish them with all of the bibliography that may be found upon a subject and that they may draw their conclusions, as to what form of report should be made to the chamber, based upon the sentiment or the viewpoint of their locality or the locality in which they live. Finally, when those four groups have reached their conclusions, have written their reports, the twenty men will be drawn together, and any differences of opinion will, if possible, be smoothed away. Thereupon, it is believed, when the twenty men agree upon a report coming from all of these sections, we will have a report that will fairly represent the general opinion of the entire country with respect to that particular subject. So the same plan will follow through as to all of the questions to be considered, such as tariff and taxation—not that we are going to touch the question of schedules. I believe there is no man related in the slightest degree to this great national movement who would contend for one moment that anything but trouble and dissolution would result from a discussion of schedules. Every line of business must take its own turn fighting for itself. Every community, where it becomes a sectional matter, must take its own place and fight for its own life. But there is one basic question that we can consider: How shall revision be made?

"On the other side this chamber of commerce will stand just as stanchly as the representative of the laborer, of the wage earner, as it will that of the employer or the capitalist. Those subjects of legislation that relate to the improvement of the workingman's condition will be guarded just as jealously and studied just as carefully as any that may relate to the special matters of regulation of commerce or to tariff revision. Education, by the same token, vocational education, will be studied with the object of making it possible for the children of men working for a living and not able to place their children in the technical schools of the country, to find a place where they may have a better foundation for their life than their fathers had, whence they may go into the activities of life not only better trained but better able to take and hold a creditable place throughout their years.

"In the matter of foreign commerce there is the great question of our over-production and the necessity of finding a permanent foreign field into which our products can be placed. Our committees will be so divided that one group will study European and North American trade; one, Latin American, and, one, Oriental; and in addition to those groups that are studying trade relations and the possibility of expanding our commerce with the world's nations, will be the group that will study copyrights, patents and trade marks, in order that we may not suffer the injustices that have been suffered in the past. There are five under domestic commerce, six under foreign commerce. Then comes that group of subjects under traffic, transportation and communication, of the railroads, of harbor and river improvement, interior, of the ocean traffic, which, of course, takes in the merchant marine; of the post office, of the telegraph, of the telephone. Then, on currency and banking, on immigration and on legislation.

"The chamber of commerce was created in April. The first meeting of its executive committee took place in May, and the first general meeting of its board of directors, yearly elected, in June. There have been filed applications from 150 of the greatest commercial organizations in this country, representing a membership of more than 100,000 firms or individuals, and mostly of firms. Of this number forty-seven are the great national trades organizations of the country. One hundred and one are the general commercial organizations and two are chambers of commerce of insular possessions. That is a very small proportion of the total number of organizations in the country, because the Department of Commerce and Labor through its Bureau of Manufactures tell us that they have a record of 4,000 boards of trade, chambers of commerce or commercial associations in the United States, and we have a record in our office of 2,300, and we know that out of the 2,300 there are probably 1,200 that are thoroughly representative, and the balance of them represent communities so small that they have comparatively little touch with national affairs. We have many months, perhaps, of hard work to do before this organization can be wholly representative, but we have made the dues so low that that little organization in Cattaraugus County, N. Y., by paying ten dollars a year, may have just as thorough a representation, upon its numerical strength, as the largest manufacturers' organization in the United States shall have. And, more, that organization shall be entitled to one delegate for its thirty-five members. The organization with 18,000 members shall be entitled to but ten delegates for its 18,000 members.

"Those are the activities we will undertake to perform. It is going to cost us some money, and we are going to find it. If the business of this country is not big enough to support its own organization, then let the organization die a natural death. If the business of this country is broad enough to look out on the horizon and see the good that can come from such a creation as I have outlined, then it will support that organization, it will be bound to no political party and to no political forces; it will be bound to no commercial party or commercial forces, but will live on to create that condition which in the last analysis must obtain if permanent prosperity and stability comes to our commerce, a condition of absolute equality and justice in the treatment of the capital of the country and of the labor of the country, and in so arranging its reports and advocating legislation that selfishness shall not obliterate from the viewpoint of the people the necessity of making prosperous the man who is doing the work at the anvil as well as the man who controls the check-book in the main office of a manufacturing plant; to give to the children of the laborer the same chance as the children of the employer; to see to it that there is a greater and a better equality of conditions in this country, in order that these things that are today being thrown about the land by our political antagonists shall not find an essence of truth anywhere in our broad country in these accusations, but that we may be able to say, such are the conditions under which the commercial interests are struggling, such are the lines of trade that have raised the standard of living of their employees to such an extent that they are not only unjustly attacked, when these statements are made, but also that it is a burning shame that conditions should be such that an attack can be made and be sanctioned by any living man in this country as applying to those advanced lines of trade which have already done so much for their own people. You gentlemen know in your own lines of work, in the industries closest to your publications, how committees of your national organizations have studied these problems and how they have improved the conditions in their shops and factories and warehouses and places of business, and you know the absolute injustice of visiting the sins of one or two upon the entire commercial community of this country."

Route for Chicago Run

Reliability to Cover 1,107 Miles in 7 Days—Contest News of the Week Alco Truck in Fine Shape

CHICAGO, ILL., Sept. 30—After a trip around Lake Michigan, blazing the trail for the Chicago Motor Club's sixth annual reliability, the Velie pathfinder which carried John G. De Long, Ronald Clark and John Brolley reached Chicago last Thursday night. The car was out 13 days but traveled only 7 days in all. The pathfinders had a rough and ready time of it, but return full of enthusiasm over the possibilities of such a route. They say that while grade 3 rules will prevail, yet the conditions will be strenuous enough to make the reliability fully as stiff a proposition as any of its predecessors. Through the woods of northern Michigan it is practically wild. Yet it can be negotiated although there will be 2 days when the mileage will not be great.

The total distance to be traveled is 1,107 miles, an average of 158 miles a day. Four states—Illinois, Wisconsin, Michigan and Indiana—will be traversed. The run from Newberry, Mich., to St. Ignace, where the cars will be ferried across the straits, is 65.2 miles in length. It is made purposely short because of the road conditions.

Entered already for the trip are two Velies, two Stutzes, a Chalmers six, Falcar, two Stavers, and a Detroiter. Two Cadillacs from the Northwestern Military and Naval Academy of Lake Geneva, Wis., are promised, while it looks now as if at least twenty or twenty-five cars will start in the affair.

Simplex Sets New 50-Mile Mark

DETROIT, MICH., Sept. 30—Louis Disbrow, driving a Simplex, set a new mark for 50 miles on a circular dirt track, when he covered that distance at the Michigan State Fair grounds here on September 29 in 45:32. The previous record of 47:21.65, made at Syracuse, N. Y., a year ago at the New York State Fair by Ralph De Palma, was cut down nearly 2 minutes. Disbrow's record of Sunday will be allowed because the meet was sanctioned by the A. A. A. and it was timed with the Warner electric timing instrument. Several exhibition races were also run off in which Endicott, Kilpatrick, and Ulbrecht participated. The meet was postponed from September 21, when it was scheduled to have been run off in connection with the State Fair. Rain and horse racing events interfered at that time, making necessary the postponement for a week.

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6/30	19	45	13	..	20
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7/4	13	30	5	11	34
7/6	10	..	5	40	23
7/7	10	..	4	43	10
7/9	13	45	8	6	19
7/10	12	45	7	..	13
7/12	13	30	8	10	18
7/13	12	46	8	45	14
7/14	14	..	6	40	12
7/15	16	..	7	24	59
7/16	13	40	3	35	28
7/17	17	30	3	35	25
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7/19	12	..	4	48	72
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Route for Chicago Run

Reliability to Cover 1,107 Miles in 7 Days—Contest News of the Week Alco Truck in Fine Shape

CHICAGO, ILL., Sept. 30—After a trip around Lake Michigan, blazing the trail for the Chicago Motor Club's sixth annual reliability, the Velie pathfinder which carried John G. De Long, Ronald Clark and John Brolley reached Chicago last Thursday night. The car was out 13 days but traveled only 7 days in all. The pathfinders had a rough and ready time of it, but return full of enthusiasm over the possibilities of such a route. They say that while grade 3 rules will prevail, yet the conditions will be strenuous enough to make the reliability fully as stiff a proposition as any of its predecessors. Through the woods of northern Michigan it is practically wild. Yet it can be negotiated although there will be 2 days when the mileage will not be great.

The total distance to be traveled is 1,107 miles, an average of 158 miles a day. Four states—Illinois, Wisconsin, Michigan and Indiana—will be traversed. The run from Newberry, Mich., to St. Ignace, where the cars will be ferried across the straits, is 65.2 miles in length. It is made purposely short because of the road conditions.

Entered already for the trip are two Velies, two Stutzes, a Chalmers six, Falcar, two Stavers, and a Detroiter. Two Cadillacs from the Northwestern Military and Naval Academy of Lake Geneva, Wis., are promised, while it looks now as if at least twenty or twenty-five cars will start in the affair.

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Business Needs Good Roads

Merchant and Banker Have Come to Realize Importance of Improved Highways

"IMPROVED vehicular transportation, which finds its highest form in the automobile, and the rapid development of commercial organizations cover practically the same period of time. Within 15 years the commercial organizations of the United States have multiplied by thousands; within 15 years the most effective agitation for road improvement has come, not by initiation in the country districts, but by the recognized dependence of the cities, particularly the cities of smaller size, upon good connection with the country."

In these words G. Grosvenor Dawe, of the Chamber of Commerce of the United States of America, speaking before the American Road Congress now assembled in Atlantic City, N. J., struck a dominant chord in the road construction activities of today showing how that modern business interests have realized the utmost necessity of good roads and how that commercial clubs, chambers of commerce and business men's leagues in smaller size cities which are to a large extent dependent on their highway communication with the surrounding country, have taken up in genuine earnestness the building of modern roads from these business centers at every angle of the compass into the surrounding country.

These business organizations have realized the financial necessity of good roads; they have realized that the good roads movement no longer can be restricted to the confines of the cross-roads orator, but that it is taking its place in the financial columns with crop reports and other live factors in industrial finance.

When various civic organizations not only start talking good roads, but when they actually engineer the construction of them it is high time that the local dealers' organizations in automobiles get in line and do more than talk and add their passive presence. If good roads in a locality will help any line of business it will help the retail car dealer, the retail tire and accessory dealer.

In Illinois the state banking organization has realized the gravity of the road situation and has not only created a good roads department in its organization, but has made state-wide canvasses obtaining statistics on the road situation, on the cost of marketing farm produce and on the increase in land values due to road improvement along the front of such property or in the immediate vicinity. The keen business eye of the banker recognized the necessity of better roads; the acute business judgment of the leading industrial lights of the cities has seen the necessity of it; and the automobile agent, branch manager, garageman, repairman, tireman, accessory dealer and every person connected directly with the automobile interest should be actively on the side of local road improvement.

But it is not only the business and professional men of the towns and cities who owe it to their own interests and to the community in which they reside to foster the cause of good roads, for the great army of agriculturists all over the country should also throw its influence into the balance. For it is obvious that the greatest benefit of improved highways will be the increased facility of getting farm products to market and the improvement in communication with both town and neighbor.

The stress which is being laid on the roads situation at the present time is rapidly growing more pronounced and augurs well for the future national development in this particular. Too much stress cannot be laid upon it. The automobile and the motor truck, with their greater speed and capacity as compared with the horse-drawn vehicle, demand highways which will heighten, or at least will not lower, their efficiency. This demand is imperative.

Synthetic Rubber to Date

SYNTHETIC rubber based on isoprene and butadiene, substances having the five-carbon and four-carbon atom construction respectively, is an accomplished chemical fact. The concrete proof lies in the performance of a set of tires used by Dr. Carl Duisberg, the noted German scientist, who states that in 4,000 miles of service no puncture was suffered or material wear noted. They must be good tires to make such a showing, but it is certain that they were used carefully and with much good fortune as to the roads. As a commercial element, even Dr. Duisberg does not expect synthetic rubber to assume significant proportions in the near future. Apparently he is entirely correct in his judgment.

The factor of cost stands like a stone wall before the

synthetic rubber enterprises. The two sets of tires turned out from the Elberfeld factory represent the commercial results of 5 years of research and labor and incidentally the expenditure of $250,000. Individually, the cost of the rubber in those tires might be placed at $31,250. Of course, such a cost would not apply to future production. But the matter of manufacturing cost is the barrier. The synthetic rubber enthusiasts are face to face with commerce. Their problem now is to perfect their processes so that synthetic rubber can compete with natural rubber in the markets of the world. Based upon present prices of material, the artificial rubber men hold that they can produce rubber to sell at 60 cents a pound or thereabouts. It is said that the production of 10,000 tons of synthetic rubber by the fusel oil process would require the starch from all the potatoes grown on 1,000,000 acres of land. Rating the yield per acre at 300 bushels, the potatoes needed would be worth at least $300,000,000. That would make the potato element in the synthetic rubber cost about $13 a pound. If sawdust is used, this cost would be reduced, but the availability of sawdust has been sharply questioned. If coal be the material at the foundation of the product, the cost of material would be within the bounds of reason. But in the light of cold, hard facts and assuming that polymerizing can be utilized on a large scale, a fact disputed by many experts, the cost of manufacturing synthetic rubber will always be a material item. The battle that will be fought, assuming that synthetic rubber is to be manufactured on a commercial scale, will be a fight for the market. The problem that must be solved involves a triumph over rubber grown on the plantations at a cost of from 15 cents to 25 cents a pound in limitless supply. The question that must be answered is: Can synthetic rubber, possessing equal quality with natural rubber, be marketed on a successful competitive basis?

Automobile Stone-Road Project Gets $300,000

AKRON, O., Sept. 30—The Goodyear Tire & Rubber Company has authorized Carl G. Fisher to put it down for a $300,000 subscription toward the stone road from New York to San Francisco, the material of which has to be purchased by a $10,000,000 fund subscribed by the automobile manufacturers, dealers and owners. This is one of the largest single donations to date, and coming unsolicitedly from the concern shows the wide interest already being taken in making road-building a reality by the industry furnishing the money to buy the requisite materials.

To date the following manufacturers representing Indiana have contributed, the gross amount exceeding $350,000, on the basis of each company paying one-third of 1 per cent. of its gross business for three successive seasons: Prest-O-Lite Company, Wheeler & Schebler, Ideal Motor Car Company, Premier Motor Manufacturing Company, Waverley Company, Gibson Automobile Company, American Motors Company, Marion Motor Car Company, Henderson Motor Car Company, Empire Tire Company, Remy Magneto Company, Esterline Manufacturing Company, Motor Car Manufacturing Company, Gus Habich, Gibson Automobile Company, C. Off & Company, Gates Manufacturing Company, Pumpelly Battery Company, Brown Commercial Car Company, Glover Equipment Company, G. A. Schnell, R. J. Irvin Manufacturing Company, A. M. Wasting Company, Cadillac Automobile Company of Indiana, Archey Aitkins Company and the Hoosier Motor Club. These subscriptions amount to $60,000 and downwards. This list includes many dealers and other concerns engaging in manufacturing tops, batteries and various other lines of work.

The industry is at present awaiting the action of Detroit as a unit in this road matter. Messrs. Walden and Chapin, of the Packard and Hudson companies, are enthusiastic over the plan and are working diligently to push it along. Henry Ford has issued a letter to all of his dealers and users with the aim of getting their views on the matter, which may to an extent determine the attitude of this company. Many members in the trade are constantly writing their friends so that the enthusiasm is working rapidly.

President Ancil Martin, of the Phoenix, Ariz., Board of Trade, has wired as follows regarding the transcontinental stone road, taking the southern route by way of Arizona so as to insure a highway open all the year around:

"National Highway Ocean to Ocean must be open all the year around to be fully appreciated and useful. Only route open the year around lies through Salt River Valley and Phoenix. This road endorsed by southern California and big sums appropriated to construct same. Many miles already splendid motor boulevard. We rely on your organization to see to it that this route is adopted by the nation."

Accurate data have already been gathered on the subject of cost of road construction, and the following figures show the actual cost of materials and labor for a stone road and also a brick road. The cost of concrete bridges is also given in these tables:

STONE ROADWAY 12 INCHES THICK AND 2 INCHES SCREENING, NEW YORK TO MISSISSIPPI RIVER

Cost of Material.		Cost per Sq. Yd. Cut 12 In. Thick		
Stone	$1.25 f.o.b. siding	Stone	$ .43	$2,270.40
Excavation	.50 cu. yd.	Screening	.07	369.60
Teams	5.00 per day, 10 hours	Hauling	.43	2,270.40
Labor	2.00 per day, 10 hours	Unloading	.05	264.00
		Grading	.17	897.60
		Oiling	.05	264.00
		Rolling	.10	528.00
			$1.30	$6,864.00

Roadway 9 ft. for 1 Mile = 5,280 sq. yds. @ $1.30 = $6,864 to $7,000.
Roadway 12 in. for 1 Mile = 7,040 sq. yds. @ $1.32 = $9,334 to 9,500.

BRICK ROADWAY 12 INCHES EXCAVATION FROM NEW YORK TO MISSISSIPPI RIVER

Cost of Material		Cost per Sq. Yd. Cut 12 In. Thick		
Brick	$10.00 per M. f.o.b. siding	Brick	$ .75	$3,960.00
Concrete	4.50 per yard	Hauling	.16	844.80
Excavation	.50 per yard	Grading	.16	844.80
Sand	1.00 per yard	Grouting	.12	633.60
Teams	5.00 per day, 10 hours	Foundation	.50	2,640.00
Labor	2.00 per day, 10 hours	Rolling	.05	264.00
		Cushion	.06	316.80
		Margin curb	.40	2,112.00
			$2.20	$11,616.00

Roadway 9 ft. for 1 Mile = 5,280 sq. yds. @ $2.20 = $11,616 to $12,000
Roadway 12 in. for 1 Mile = 7,040 sq. yds. @ $2.13 = $15,000

Concrete Bridges	Cost if Roadway is 9 Ft.	Cost if Roadway is 12 Ft.
6-ft. span	$ 150.00	$ 200.00
12-ft. span	350.00	450.00
14-ft. span	400.00	500.00
18-ft. span	700.00	950.00
24-ft. span	950.00	1,300.00
36-ft. span	1,450.00	1,950.00

	Cost per Sq. Yd. Cut 12 In. Thick			
Stone @ $1.00 per cu. yd.	Stone	@	$.34	$1,795.20
	Screenings	@	.06	316.80
	Hauling	@	.43	2,270.40
	Unloading	@	.05	264.00
	Grading	@	.17	897.60
	Oiling	@	.05	264.00
	Rolling	@	.10	528.00
				$6,336.00

Gathering of branch managers, distributors and representatives of the Oakland Motor Car Company, Pontiac, Mich., in front of the company's plant during their recent convention

OAKLAND Dealers Assemble—At the recent convention of branch managers, distributors and representatives of the Oakland Motor Car Company, Pontiac, Mich., there was an assembly of 125 men from all parts of the country. The above photograph shows the assembled dealers in front of the Oakland company's plant.

Fletcher Denver Locomobile Manager—R. C. Fletcher, formerly with the Van Vliet Fletcher Company, Des Moines, Ia., is now Denver manager for the Locomobile.

Bergdoll Agency in Syracuse—The Louis J. Bergdoll Motor Company, Philadelphia, Pa., will soon be represented in Syracuse, N. Y., and vicinity by a direct selling agency.

Philadelphia Tire Represented in Baltimore—The Philadelphia Motor Tire Company, Philadelphia, Pa., has opened an agency at 107 West Mt. Royal avenue, Baltimore, Md.

Owen & Company Moves—R. M. Owen & Company have moved their executive offices and the New York Reo branch to their new quarters at 19-21 West Sixty-second street.

Portland Club House Completed—The Portland Automobile Club, Portland, Ore., has just completed its new club house on the Sandy River, some 16 miles from the Rose City.

Anderson in Charge Ford Branch—W. C. Anderson is to have charge of the Ford branch which opened October 1, in Minneapolis, Minn. He will have charge also of the St. Paul, Minn., sub-branch.

State Association's Convention—Officials of the New York State Automobile Association have decided to hold their annual state convention this year in Utica, N. Y., during the first week in December.

Welland's Automobile Parade—An automobile parade was held Saturday at Welland, Ont., in connection with the Monck County fair at Wellandport, prizes being awarded to best decorated automobiles.

Toledo Building for Parking Automobiles—A building designed exclusively for the parking of automobiles, now left standing on the down-town streets of Toledo, O., will be erected at 324-326 Huron street.

Automobile Parade in Wilmington—An automobile parade, on the evening of Thursday, October 10, will be a feature of a home coming celebration which will be held in Wilmington, Del., during the week of October 6.

Omaha Wants Mail Automobiles—Two automobiles will soon be put in use for the collection of mail in Omaha, Neb., if the proper machines can be secured at a price satisfactory to the Post Office Department officials.

Chalmers Pathfinder Finished Run—The pathfinder Chalmers Six, driven by V. W. Reynolds, arrived in Des Moines, Ia., after a 5-day trip around Iowa blazing the way for the All Iowa Reliability Run which will be held early in October.

Mississippi Good Roads Tour—There were thirty-eight participants in the Southern Mississippi Good Roads Tour, who completed a trip over Covington county. The tour will be made an annual affair and next year will embrace adjoining counties.

Studebaker Branch Managers Meet—About thirty branch managers and officers of the Studebaker Corporation met at a dinner at the Pontchartrain Hotel September 26, the occasion being the annual meeting for the discussion of the coming season's campaign.

Hunziker Takes Warner Agency—J. H. Hunziker, manager of the Northwestern Shawmut Tire Agency, Minneapolis, Minn., has taken the distributing agency for the Warner autometers, formerly handled by the Standard Distributing Company. The agency is 1204 Hennepin avenue.

Minnesota's 2,700 Miles of Highway—Contracts for construction of 2,700 miles of highway in Minnesota next summer will be authorized by the state highway commission. Seven hundred miles will be absolutely new road in the northern part of the state. Surveying, stumping and sand hauling will be done in the winter. The mileage will be completed by fall.

Stoddard Company Moves—The Stoddard Motor Company, distributor of Stoddard-Dayton cars in the metropolitan territory, has moved from Fifty-seventh street to the building of the United States Motor Company at Broadway and Sixty-first street, New York City. This move is a part of the general plan of concentrating facilities for the sale of products of the United States Motor Company.

Opens Truck Station—What is claimed to be the largest truck service station in the United States has just been opened in Detroit, Mich., by the General Motors Truck Company. The building, which has space to take care of from 150 to 200 trucks, was erected at a cost of about $150,000. There is a total floor space of 50,000 square feet, which is utilized for garage, repair shops and stockroom as well as for offices.

Middleburg Club Elects Officers—James L. Baker was elected president of the Middleburg, N. Y., Automobile Club, recently organized, and other officers elected include: Vice-president, Dr. C. S. Best; secretary, Roger W. Cornell; treasurer, William J. Pindar; committee on good roads, Frank A. Sullivan, Dr. Lyman Driesbach, James C. Borst, and Asa A. Dutton; committee on by-laws, George A. Mill, Dr. Josiah Mann, William G. Deekman, and Charles C. Dutton.

Novel Street Cleaning Device—With a regard for the comfort and safety of the Los Angeles, Cal., traffic, the officers of the Automobile Club of Southern California have worked out a quicker and more efficient plan than the one now employed for cleaning the city streets. The plan involves cleaning the streets by means of air tanks fastened to the street cars. The cleaning of the streets could then be quickly and effectually done during the hours of 2 and 4 a. m. Motorists who have had trouble and accidents caused by tire skidding while the streets were being flooded under the present system are watching the outcome of the safer plan with interest.

New Agencies Established During the Week

PLEASURE CARS

Place	Car	Agent
Albany, N. Y.	Velie	Robert F. Payne
Atlanta, Ga.	R-C-H	O. C. Drew, Jr.
Birmingham, Ala.	Cole	Robertson Tire & Auto Co.
Binghamton, N. Y.	Palmer-Singer	D. V. Ashley
Bloomsburg, N. Y.	Palmer-Singer	C. W. McKelvey
Boston, Mass.	Chevrolet	Tyler Bros. Cor.
Boston, Mass.	Pope-Hartford	Fred H. Lucas
Brockton, Mass.	Palmer-Singer	Loring Motor C. Co.
Burlington, Iowa	Cole	Barton-Ford Motor Company
Cedar Rapids, Iowa	Cole	W. H. Culland & Co.
Chicago, Ill.	R-C-H	Wm. Konow
Cinthiana, Ind.	R-C-H	A. D. Barton
Claremont, N. H.	R-C-H	E. F. Cushion
Clarion, Pa.	Cole	W. H. Gulland & Co.
Clearfield, Pa.	Cole	Wallace Bros.
Coatsville, Ind.	R-C-H	Frank Johnson
Columbus, O.	Great Western	C. E. Ross Gar. Co.
Columbus, O.	Marathon	Pausch-Selbach Wagon Co.
Dallas, Tex.	Regal	Fife & Miller
Dayton, O.	Franklin	S. C. Crane
Denver, Colo.	Palmer-Singer	W. Barnett
Eau Claire, Wis.	Cole	Tanbert Auto. Co.
Fargo, N. Dak.	Kissel-Kar	William Ball
Fredonia, Kan.	R-C-H	J. W. Paulon
Gardner, Mass.	Jackson	Brown-Rawson Co.
Gardner, Mass.	Metz	Brown-Rawson Co.
Gardner, Mass.	Hyberg	Brown-Rawson Co.
Gladstone, Mich.	Palmer-Singer	Chas. Slining
Greenfield, Mass.	R-C-H	H. E. Shaw
Houston, Tex.	Palmer-Singer	Peters Bros.
Johnstown, Pa.	Cole	Daniel Statter & Co.
Kansas City, Mo.	Nyberg	A. D. Wright
London Mills, Ill.	Palmer-Singer	Zenette Groom
Lynn, Mass.	Hudson	Sibley & Green
Lynn, Mass.	Studebaker	Sibley & Green
Logansport, Ind.	Nyberg	Harms & Cragun
Maquoketa, Ia.	R-C-H	Palmer Auto & Sup. Co.
Meadville, Pa.	Palmer-Singer	Thomas & Kiebort
Medarysville, Ind.	Nyberg	Guild & Hackley
Menessen, Pa.	R-C-H	Carmine Coccari
Miami, Fla.	R-C-H	W. V. Little
Minneapolis, Minn.	Abbott-Detroit	Andersch Brothers
Montreal, Can.	Mitchell	Bellerive Garage
Montreal, Can.	Palmer-Singer	E. Major
Mt. Carmel, Ill.	Palmer-Singer	Baumgart & Co.
Naugatuck, Conn.	Cole	Richardson Bros. Garage
Newark, N. J.	Palmer-Singer	H. Heinsheimer
Newton Highland, Mass.	R-C-H	Woodsworth Bros.
Niagara Falls, N. Y.	Cole	Arthur M. King
Niagara Falls, N. Y.	Overland	R. H. Pattison
Opelike, Ala.	Cole	Isham J. Dorsey
Philadelphia, Pa.	Palmer-Singer	Liberty Motor Co.
Pittsburg, Kans.	Nyberg	Chas. B. Hunter, Jr.
Pontiac, Ill.	Cole	Pontiac Motor Car Co.
Princeton, Ill.	Cole	S. L. Bradley & Co.
Providence, R. I.	Columbia	J. H. MacAlman
Providence, R. I.	Palmer-Singer	Pugh Bros.
Providence, R. I.	Stearns	J. H. MacAlman
Pueblo, Colo.	Palmer-Singer	Ideal Motor Co.
Richmond, Va.	Palmer-Singer	Chas. W. Shields Co.
Rockford, Ill.	Cole	Fred Carlson
San Marcos, Tex.	R-C-H	E. F. Walker
Santa Barbara, Cal.	R-C-H	B. C. Barry
Schenectady, N. Y.	Detroiter	Brenner Com.
Schenectady, N. Y.	Palmer-Singer	W. E. Berning
Scheyenne, N. Dak.	R-C-H	L. S. Rudy
Scranton, Pa.	Palmer-Singer	W. L. Perry
Springfield, Mass.	Palmer-Singer	Blue Ribbon Garage
South Bend, Ind.	Maxwell	J. W. Nikart
Syracuse, N. Y.	Flanders	Edward P. Young
Syracuse, N. Y.	Palmer-Singer	J. T. Mollard
Sulphur Springs, O.	Nyberg	D. E. Schwab
Tekamah, Neb.	Cole	Welch Bros.
Thurman, Iowa	Cole	Thurman Motor Car Co.
Toledo, O.	R-C-H	E. W. Burg
Trenton, N. J.	Palmer-Singer	H. E. Stout & Son
Washington, D. C.	Palmer-Singer	Warrington M. C. Co.
West Liberty, Iowa	Cole	West Liberty Auto Co.
Williamsport, Pa.	Cole	William Schaffer
Wilmington, Del.	Hudson	W. E. Walsh
Wilmington, N. C.	Palmer-Singer	Queen City Cycle Co.
Worcester, Mass.	Palmer-Singer	Harvey Parker

COMMERCIAL CARS

Auburn, Cal.	Federal	H. W. Davis
Augusta, Ga.	Federal	Lombard Iron Works
Central Village, Conn.	Federal	U. LaFrance
Dallas, Tex.	Wichita	Wm. T. Fulton Co.
Evanston, Ill.	Federal	G. C. Foster & Co.
Hammond, Ind.	Federal	E. O. Minas & Co.
Jamestown, N. Y.	Federal	Edwin Wells
Monticello, Ky.	Federal	G. O. Bassett
New Haven, Conn.	Federal	Alling Garage Co.
Petaluma, Cal.	Federal	Jos. Peoples
Pueblo, Colo.	Federal	Ideal Motor C. Co.
Richmond, Va.	Federal	Oakland Auto Co.
Rochester, N. Y.	Federal	J. Cunningham
Sacramento, Cal.	Federal	J. D. Lauppe
Schenectady, N. Y.	Federal	Sterling Garage
St. Charles, Ill.	Federal	C. S. McCornack
St. Louis, Mo.	Durable Dayton	C. D. Hathaway
Toronto, Ont.	Federal	Central Gar. & Supply Co.
Traverse City, Mich.	Federal	Traverse City Iron Works.
Vancouver, B. C.	Federal	H. J. Tucker
Washington, D. C.	Federal	Louis Hartig

ELECTRIC CARS

Boston, Mass.	Columbus Electric	Tyler Bros. Cor.
South Bend, Ind.	Standard Electric	F. S. Riley
Syracuse, N. Y.	Standard Electric	T. A. Reed & Co.

Farmers Using Trucks—Farmers are using motor trucks almost exclusively in Orleans County, N. Y., for delivery to cities of berries, butter, cream and produce, owing to the improvement in good roads in that section.

Welland's Orphans' Day—Orphans' Day was celebrated recently at Welland, Ont., the children of the Welland Orphans' Home being taken in automobiles to Queenstown Heights and return. Many Wellanders loaned their automobiles for the occasion and the event was highly successful.

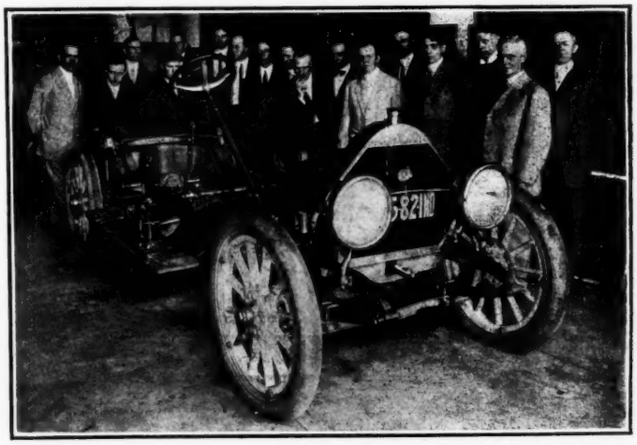
Corse Elected Secretary-Treasurer—W. M. Corse, of the Lumen Bearing Company, Buffalo, N. Y., maker of ball bearings for automobiles, was elected secretary-treasurer last week of the American Institute of Metals in the annual convention at that city. The meeting next year will be in Chicago, Ill.

Protest Rochester Light Law—The Automobile Club of Rochester, N. Y., is fighting for the repeal of the city ordinance which forbids use within city limits of strong headlights on automobiles. The officials of the Rochester association claim that several accidents have occurred because of lack of sufficient light on motor cars.

Good Crops, Good Sales—Prospects of another large cotton crop this year is the most encouraging feature of the fall and winter outlook for the sale of automobiles in the South. Even with a fairly early frost the chances favor a production of more than 12,000,000 bales. This, combined with the heavy yield of rice and corn, insures prosperity for the greater part of another year.

Cincinnati Ordinance Repealed—The traffic ordinance in Cincinnati, O., which for several years has prevented automobilists from using all kinds of warning signals except the hand-operated bulb horn, has been repealed. It has been supplanted by a new law which allows the use of any device which will produce an abrupt sound sufficiently loud to serve as an adequate warning of danger.

Co-operation in Cole Forces—The Cole Motor Car Company, Indianapolis, Ind., has divided the country in territories, with district sales managers in charge of certain allotted territory. The idea is to give Cole agents and owners stimulated co-operation in having these sales managers keeping in direct personal touch with them. These sales managers will work directly in touch with President J. J. Cole and his sales force in Indianapolis.



Agents assisting by suggestions in the construction of the Cole. Rear of chassis, President J. J. Cole, Chief Engineer Charles A. Crafford, Theodore Williams, Canal Dover, O.; Engineer J. M. Smith, C. D. Robinson, St. Louis; F. R. Schubert, Akron, O.; W. F. Blackford, Louisville; C. H. Strout (factory); J. A. Hutchinson, St. Louis; H. S. Haynes, Minneapolis; F. E. Richardson, Cleveland; J. F. Luhrman, Cincinnati; L. W. Hanley, Cleveland; N. H. Strauss, Cincinnati; Oscar Grenwist, H. E. Katrincholm, Sweden; C. H. Corkhill, Omaha; General Sales Manager C. P. Henderson

Transcontinental Alco, which is going back to work

Hopkins Sales Manager Dissette—J. B. Hopkins has been appointed manager of the sales department of the Dissette Motor Company, Toronto, Canada.

Automobile Show in Nashville—An automobile show is to displace the time honored horse show at the Tennessee state fair, Nashville, Tenn., Sept. 23, this year.

Stillman with Amplex Company—Harry Stillman has succeeded George Saltzman, factory superintendent of the Amplex Motor Car company, Mishawaka, Ind.

Delhi Club Organized—An automobile club was organized in Delhi, N. Y., recently and was immediately affiliated with the New York State Automobile Association.

Automobiles Used in Mines—Motor driven cars have been installed in the Sloss-Sheffield Steel & Iron Company's mines near Birmingham, Ala. They take the place of animal traction.

Grinnell Electrics for Antipodes—The Grinnell Electric Company, Detroit, Mich., has just shipped ten more cars to Australia, making twenty in all that have been ordered for the antipodes.

Marmon Leaves Broadway—The Sidney B. Bowman Automobile Company, New York City distributor of Marmon cars, has decided to permanently locate its sales department at its service building, 225 West Forty-ninth street.

Humphries Factory Manager Oakland—S. H. Humphries, who has been manager of the Elmore plant at Clyde, O., will take the position of factory manager of the Oakland Motor Car Company, Pontiac, Mich., succeeding the late Thomas Wilson.

Thibedeau Makes Abbott Change—J. R. Thibedeau, formerly connected with the purchasing department of the Abbott Motor Company, Detroit, Mich., has been made assistant manager of the technical and service department of the same company.

Matheson with Hayes Company—George N. Matheson, for many years purchasing agent for the National Motor Vehicle Company of Indianapolis, Ind., has accepted the position of purchasing agent for the Hayes Manufacturing Company, Detroit, Mich.

Moore Manager Tire Branch—George P. Moore has been appointed manager of the local branch of the International Rosilie Company, 1133 Main Street, Buffalo, N. Y., which concern makes a product for filling automobile tires, headquarters being in Elmira, N. Y.

Winterson Lozier Traveling Representative—J. P. Winterson, formerly connected with the Eastern sales department of the Lozier Motor Company in New York City, has been appointed special traveling representative for that company to cover territory in the Southwest.

Rhode Island Dealers' Outing—The members of the Rhode Island Automobile Dealers' Association enjoyed their annual outing last week when a run was made from Providence, R. I., to Lakeville, Mass. The start was made at noon and the place was reached in a short time.

Nashville Anti-Noise City—Nashville, Tenn., by a city ordinance, has made it unlawful to cut out the muffler within the city limits or to use any warning device other than a bulb horn or an electric bell. A fine of $25 is provided for those convicted of violating the ordinance.

Herding Cattle in Automobiles—The latest use of the automobile in Texas is in herding cattle on the Western plains. During the past week the idea of herding cattle in an automobile was tried out on a ranch in Potter county. This ranch was in fine condition and the test was satisfactory.

Aermore's Unique Selling Plan—The Aermore Manufacturing Company, Chicago, Ill., has devised a plan for quickly obtaining distribution of its exhaust horn. The plan consists of sending out to garage owners or dealers in automobile supplies, accessories, etc., one full sized Aermore exhaust horn for demonstrating purposes free.

Victor Increases Staff—The Victor Rubber Company, Springfield, O., has added to its staff Frank R. Talbott, who has been connected with prominent Akron rubber companies for a number of years. F. B. Patrick, well known in Ohio newspaper and advertising circles, has also accepted a position with the same company, and will be employed in the advertising and sales departments.

Hupp Leases New Detroit Quarters—The Hupp Motor Company has leased the large showroom at the corner of Woodward and Willis avenues, Detroit, Mich., originally leased by the Cole Motor Company, of Indianapolis, Ind. This company placed its car in an agency which occupies the former quarters of the Oakland company and has sublet the corner to the Hupp company for a term of years.

Fargo's Club House—The Fargo Automobile Club, Fargo, N. D., is seeking a site for a club house which it proposes to erect early in the spring. A committee consisting of President Seth Richardson and William Stern has been chosen to look over several proposed sites and report upon the most available. The plan is to build a club house on the banks of the Red River of the North, a few miles from the city. Golf links and tennis courts will be provided and the club will be conducted as a town and country club.

Sister City's Club House—A committee has been appointed, headed by Colonel S. E. Moss, of Dallas, Texas, to make plans for the erection of a $30,000 club house and to be known as the "Sister City's Club House." The erection of the building will be under the direction of the Dallas and Fort Worth Automobile associations. Plans are to erect the building at a point midway on the Dallas-Fort Worth pike and also easily accessible by the Interurban. An option has been secured on several acres of land. In addition a garage will be erected.

Reciprocity Law Pinches—The Springfield, Mass., Motor Club has decided to get busy when the next Legislature meets to try to have a change made in the motor law, whereby there will be a better plan for reciprocity touring in the New England states. Visitors from Vermont, Connecticut and Maine are limited to 10 days in the Bay State, but Massachusetts

Automobile Incorporations

AUTOMOBILES AND PARTS

ATLANTIC CITY, N. J.—Pierson-Harris Company; capital, $10,000; to manufacture automobiles. Incorporators: Gilbert Pierson, Edward G. Harris.

AUSTIN, TEX.—The Cleburne Motor Car Manufacturing Company; capital, $10,000; to manufacture automobiles. Incorporators: H. E. Luck, W. P. Ball, Brown Douglas.

BROOKLYN, N. Y.—Mears Motor Vehicle Company; capital, $600; to deal in motor vehicles. Incorporators: J. W. Mears, E. A. Kellam, C. Mears.

CHICAGO, ILL.—Schillo Motor Sales Company; capital, $15,000; to manufacture and deal in automobiles, motor vehicles and accessories. Incorporators: Leonard Lorimer, E. W. Schillo, Albert G. Schillo.

CLEVELAND, O.—Cadillac Auto Company; capital $50,000; to deal in automobiles, parts and accessories. Incorporators: Thomas B. Bolton, William H. Marlatt, F. H. Pelton, M. Jenkins, M. D. Hayes.

ELYRIA, O.—Elyria Auto Sales Company; capital, $10,000; to deal in automobiles. Incorporators: W. G. Bennett, I. W. Lyon, F. S. Bates, Correll H. Smith, J. J. Dillon.

GRAFTON, W. VA.—Grafton Motor Company; capital, $5,000; to manufacture motors. Incorporators: Henry J. Proacht, H. D. Caomerford, D. C. Peck.

NEW YORK CITY, N. Y.—Motor & Gear Improvement Company; capital, $1,250,000; to deal in automobiles, etc. Incorporators: Henry C. Derham, S. V. Brady, Dwight Partridge, J. Sass, G. M. Stevens.

NEW YORK CITY, N. Y.—Industrial & Trading Company; capital $5,000; to engage in a general commission business in motor vehicles and parts. Incorporators: A. M. Becker, John A. Lemline, E. H. Ferguson.

RALEIGH, N. C.—Motor Sales Company; capital, $25,000; to sell motors. Incorporators: D. F. Fort, Jr., T. C. Powell, R. M. Merritt.

ROCHESTER, N. Y.—Fordham Company; capital, $3,000; to manufacture and deal in automobiles, etc. Incorporators: Gerald F. Cox, Eugene A. Reinke, Richard Stanton.

RUSTON, LA.—Malbury Motor Company; capital, $10,000; to manufacture motors. Incorporators: J. D. Barksdale, W. F. Batson.

SAN ANGELO, TEX.—S. L. Henderson Company; capital, $10,000; to engage in the automobile business. Incorporators: S. L. Henderson, J. L. Allison, George S. Allison.

TOLEDO, O.—Landman Griffith Motor Company; capital, $10,000; to manufacture motors.

UTICA, N. Y.—Otis Motor Sales Company; capital, $10,000; to engage in the automobile business. Incorporators: Edward J. Otis, William T. Cantwell, T. Harvey Ferris.

WINNIPEG, CAN.—Tudhope Automobiles, Ltd.; capital, $60,000; to engage in the automobile business. Incorporators: Walter George Chater, Harry Anderson, George Huntingdon Ross, Douglass Nicholson, Harry Folliott Gyles.

motorists are not restricted in these states. There has been a lot of friction this year over the reciprocity clauses, and a change will probably be made next year in some of the states.

One Toll Road in Indiana—With the purchase of the toll road from New Albany to Paoli, Ind., by the Floyd County, Ind., commissioners, but one other toll road remains in that state.

Columbus Lozier Agent Moves—J. B. Hoover, Columbus, O., agent for the Lozier, has moved from East Broad street to 215 North Fourth street, with the Coats Motor Car Company.

Buffalo-Batavia Road Opened—The New York State Highway Commission last week opened for traffic of motorists the Buffalo-Batavia road through Williamsville and Clarence, N. Y.

Denby with Federal Truck—The Federal Motor Truck Company, Detroit, Mich., has appointed Garvin Denby secretary and treasurer with general charge over the sales department.

Resilio Tire in Columbus—The Resilio Tire Filling Company is the name of a new concern which has opened a sales room and shop in Columbus, O., to fill automobile tires by a patented process.

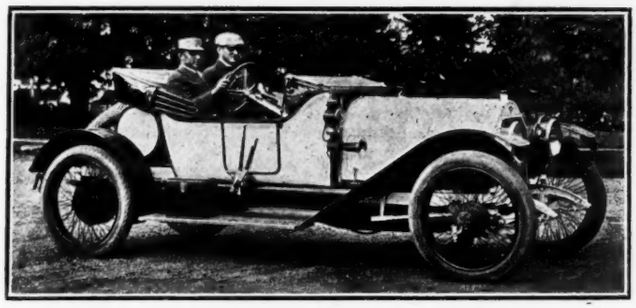
Thomas Lozier Representative—Fred W. Thomas has been appointed special traveling representative of the Lozier Motor Company, Detroit, Mich., in New York and Pennsylvania. He succeeds W. L. Davis.

Opens Rhode Island Branch—President John H. MacAlman of the Boston, Mass., Automobile Dealers Association, has opened a branch at Providence for the Stearns and Columbia with Harry Farrow in charge.

Many Automobilists Visiting New Orleans—Visiting cars are increasing steadily in New Orleans, La. The winter season this year promises to be unusually gay. Cars from other states are allowed to operate here for 30 days without the payment of additional license.

Has Philadelphia Factory Branch—A direct factory branch of the Federal Rubber Manufacturing Company, Milwaukee, Wis., has been established at 707 North Broad street, Philadelphia, Pa., in charge of Harry D. Benner.

Shreveport Taxicab Service Popular.—Taxicab service has been installed in Shreveport, La., and is proving very popular. This means of transportation about the city is in such demand that additional cars have been ordered.



H. C. Stutz in Stutz roadster with wire wheels

Moon's St. Louis Salesroom—The Moon Motor Car Company, St. Louis, Mo., has opened a salesroom in that city, to be known as the Lewis Automobile Company, 4108 Olive street, of which J. D. Perry Lewis is the president.

Firestone Philadelphia Branch Moves—The Firestone Tire & Rubber Company, now located at 256 North Broad street, Philadelphia, Pa., will upon completion of its new quarters some time during October remove to 304 North Broad street.

Tioga Company's New Quarters—The Tioga Automobile Company, 332 North Broad street, Philadelphia, Pa., distributers of the Hupmobile and National cars, will on October 1 remove to its new sales and service building, Broad and Tioga streets.

Henderson with Woods Electric—John C. Henderson, formerly with the Waverley Company, Indianapolis, Ind., and the Westinghouse Company, Pittsburgh, Pa., will from now on travel the eastern territory in the interest of the Woods Motor Vehicle Company, Chicago, Ill.

Stutz's McCue Wire Wheels—The Stutz is one of the first cars in the United States to put wire wheels on their regular models as optional equipment. The accompanying photograph shows H. C. Stutz, president of the Stutz Company, Indianapolis, Ind., with W. D. Meyers at the wheel.

Clearing House Formed—George Tolman and Edward H. Houtz, both well known in Boston motor circles, have formed the Massachusetts Automobile Clearing House with headquarters at 108-110 Massachusetts avenue, and they have arranged with a number of local dealers to handle the second-hand cars taken in trade.

Studebaker's Model Salesroom—As an object lesson to the army of dealers who annually visit its Detroit plants, the Studebaker Corporation, Detroit, Mich., is shortly to open a model automobile garage, salesroom and repair shop, in which will be embodied every advanced idea in arrangement, labor-saving devices and other details.

May Leaves G. & A. Carbureter—Fred May, who since January, 1911, was connected with the G. & A. Carbureter Company, New York City, will leave this company on October 15 to go in the accounting business for himself. He will open an office in New York City and will do business as an accountant throughout the Empire State.

Alco Going Back in Service—Upon arrival from Petaluma, Cal., where it terminated the first transcontinental haul of merchandise, the Alco truck of Charles W. Young & Company, Philadelphia, Pa., will be returned direct to service. The accompanying illustration shows the truck passing over a smooth stretch of road on its overland journey.

Start Good Roads Fund—In order to increase the good roads mileage radiating from the state capital automobile owners of Baton Rouge, La., have started a fund for this purpose. An attempt will be made to secure $1c0 from each owner of an automobile. Work on the roads is to begin at once. Gravel will be used as surfacing material.

Governor Dix Heeds Petition—Residents of Glens Falls, N. Y., addressed to Governor Dix a petition protesting against acceptance of the new state road between Lake George and Glens Falls, and petitioners received this statement from the executive that the road will not be accepted until after complete investigation of the condition.

White Agents Visit Factory—In a special car attached to "The Wolverine," the fast Western train, a party of New England men who handle the White in that section started for the White factory at Cleveland, O. Before starting they were the guests of Manager J. S. Hathaway, of the Boston branch, at a luncheon at the Boston Athletic Club.

Automobile Incorporations

GARAGES AND ACCESSORIES

BROOKLYN, N. Y.—Monarch Auto Trucking Company; capital, $5,000; to carry on a trucking business. Incorporators: Helen Person, Walter H. Babcock.

CHICAGO, ILL.—Automobile Accessories Company; capital $25,000; to manufacture automobile accessories. Incorporators: Frederick J. Jackson, Frank D. Narelli.

CHICAGO, ILL.—South Park Automobile Garage Company; capital, $250,000; to carry on a garage business. Incorporators: German Frank, Harry J. Lurie, John L. Anderson.

DALLAS, TEX.—Havolin Auto Supply Company; capital, $10,000; to sell automobile accessories. Incorporators: F. E. White, Edwin Hobby, J. W. Crotty.

KINGSTON, N. Y.—Taxicab Transportation Company; capital, $9,000; to conduct a taxicab service business. Incorporators: W. Hilterbrant, F. K. Hilterbrant, E. Hilterbrant.

NEW ALBANY, IND.—New Albany, Corydon and Greenville Auto & Transfer Company; capital, $2100; to operate a motor bus for passengers and freight. Incorporators: J. M. Ferguson, H. F. Rohlfing, J. Schilmiller.

NEW YORK CITY, N. Y.—Forty-Ninth Street Garage; capital, $1,000; to engage in the garage business. Incorporators Paul R. Towne, Harold C. Knapp, Richard H. McIntyre, Jr.

NEW YORK CITY, N. Y.—New York Garage Association; capital, $2,000; to conduct a general garage keepers' exchange. Incorporators: Charles H. Potter, Louis J. Joscelyn, William Burrows.

NEW YORK CITY, N. Y.—Simplex Carbureter Company; capital, $150,000; to manufacture and deal in carburetors. Incorporators: Albert L. Kull, Colcord Upton, Simon J. Mayer.

NEW YORK CITY, N. Y.—Tredvent Tire Company; capital, $100,000; to manufacture automobile tires. Incorporators: Morris Rachmill, Nathan A. Sterling, Samuel Ring.

ROCHESTER, N. Y.—Selden Motor Vehicle Company; capital $150,000; to carry on an automobile truck business. Incorporators: George C. Gordon, W. C. Barry, Jr., R. H. Salmons, C. Strong, Charles N. Stearns.

ST. LOUIS, MO.—Engineer Starter Company; capital $50,000; to manufacture a self-starting device for automobiles. Incorporators: George W. Owens, Louis A. Mesker, Fred G. Decker.

CHANGES OF NAME AND CAPITAL

CHICAGO, ILL.—Henry Lee Power Company; name changed to Old Reliable Motor Trucks Company.

MIDDLETOWN, O.—Crescent Motor Truck Company; increase of capital to $100,000.

MUSKEGON, MICH.—Piston Ring Company; increase of capital from $5,000 to $13,000.

SYRACUSE, N. Y.—C. Arthur Benjamin, Incorporated; increase of capital from $5,000 to $100,000.

Factory Miscellany

Machine used for the grinding of valves in the factory of the National Motor Vehicle Company at Indianapolis, Ind. It will do the work on a four-cylinder motor in 30 minutes

Grinding in valves at the National Motor Vehicle Company's factory at Indianapolis, Ind., does not take a very long time. The machine illustrated above, which was designed and made at the National Company's plant, will do the work for a four-cylinder motor in 30 minutes. The machine grinds four valves at once. The National motor is of the T-head type, therefore it is necessary to grind valves on both sides of the cylinder. The machine grinds all the valves on one side of the cylinder at one time and then, with a simple movement, the operator swings the table carrying the cylinder castings back into position for the next set to be ground in.

It takes but 30 seconds to set up the work. The cylinder castings are lifted into the guides on the tables and centered beneath the spindles carrying the grinding tools. The machine is then started and after 15 minutes has completely finished the four valves on one side of the cylinder. The grinding machine is remarkable in that the motion imparted to the grinding instrument is not merely rotary, but consists in three complete rotations in one direction and then a complete reversal and three motions in the opposite direction. The reversal of the direction of the revolving spindle is entirely automatic. The rate at which the tool is driven calls for 40 reversals per minute or 120 complete revolutions, since there are three revolutions to a reversal. The machine is capable of operating steadily throughout the working day of 10 hours and in that time can turn out 20 complete jobs. This is more than five times the speed, according to the National engineers, than can be attained by skilled workmen. The machine requires but one man to operate it, and to set up the work as well as to maintain it in its proper condition. The result of using this machine is that better work is secured, the results being more uniform, and the cost per valve of performing the operation is considerably reduced, thus giving economy in this respect as well as in point of time.

Hess-Bright's New Factory—The new factory and office of the Hess-Bright Manufacturing Company, Philadelphia, Pa., is shown in the accompanying photograph. The frontage of the building is 200 feet and the depth is 235 feet. The second floor, to a depth of 35 feet, is devoted to offices. Back of the offices the building is one-story high with saw-tooth roof.

To Manufacture in Norfolk—C. E. Wright & Company are preparing to build a plant in Norfolk, Va., to manufacture automobiles.

Velie Erects Test Building—The Velie Motor Vehicle Company, Moline, Ill., is to erect a $15,000 road repair and test building south of the present factory shop.

Jackson May Build in Canada—The Jackson Manufacturing Company, Jackson, Mich., is considering the location of a Canadian branch of its factory in Baronville, Ont.

Russell Company Instal's Machinery—The Russell Motor Car Company, Toronto, Ont., has installed in its local plant additional machinery, the total cost being $100,000.

New Truck Plant Starts—The new Gramm-Bernstein factory in Lima, O., was put into operation on September 13 and the manufacturing and assembling of motor trucks was begun.

Brockway Company Erects Plant—The Brockway Motor Truck Company, Cortland, N. Y., which was recently incorporated, will erect and equip a plant for the manufacture of motor vehicles.

Ford Factory in Minneapolis—W. C. Anderson, of the Ford Motor Company, Detroit, Mich., has gone to Minneapolis, Minn., where quarters for a large assembling plant have been located temporarily while a great building is being erected. Work on this building will start immediately, and it will take 9 months to complete. The Ford Company plans to assemble 10,000 cars at this point for 1913.

Prest-O-Lite Buys Property—The Prest-O-Lite Company, Minneapolis, Minn., has bought 80 feet by 336 feet of property at Charles and Carlton streets, St. Paul, Minn., for $8,000, and will enlarge it.

Body Company Builds Addition—The Herbert Manufacturing Company, Detroit, Mich., manufacturers of automobile bodies, will erect a new factory building at 1123-1135 Vermont avenue, that city.

Grabler Company's Foundry Addition—The Grabler Manufacturing Company, Cleveland, O., manufacturers of automobile parts, awarded contracts for the erection of a foundry addition to cost $7,000.

Goodrich Plant Reduces—The B. F. Goodrich Rubber Company, Akron, O., has laid off 1,000 of its employees. The reason given by the company is that this is considered the dull season in all rubber manufacturing lines.

Western Canadian Automobile Factory—The first automobile factory in Western Canada will be located in Moose Jaw, Sask., The St. Louis, Mo., Car Company will employ one hundred men and turn out an all-Canadian car.

Croxton Plant Finished—The erection of the structural steel work for the Croxton Motor Car Company, Washington, Pa., was completed recently. The company aims to be in operation by October 15. It will use electric power.

Bohemian Expert Sees Big Plants—Guyla Von Fisher, a Bohemian electrical engineer, stopped in Detroit, Mich., recently for inspection of the Detroit factories under escort of E. E. Moskovics, sales manager of the Remy Electric Company, Anderson, Ind.

Lamp Makers Plan Addition—The Corcoran Brothers Company, Cincinnati, O., automobile lamp manufacturers, recently gave orders to prepare plans for a three-story fireproof addition, to be erected north of the main plant. It will be 35 feet by 145 feet, and of brick and steel construction.

Ford's Body-Building Scheme—Plans to construct bodies at the various assembling plants of the Ford Motor Company, Detroit, Mich., throughout the United States will cut down the number of freight cars used in shipping the parts to these plants for assembly. Body building and painting departments are to be added to all plants.

Selden Truck Company Formed—The Selden Truck Sales Company of Rochester, N. Y., has just been incorporated with a capital of $50,000, to handle the entire truck product of the Selden Motor Vehicle Company, of that city. The object of this selling organization is to sell motor trucks direct from the factory to the user upon terms of easy payments.

Long Manufacturing Company's Addition—Another building is to be constructed as an addition to the plant of the Long Manufacturing Company, Detroit, Mich., manufacturers of radiators. The size of the new structure has not been determined upon, but it is designed by this addition to secure sufficient space to enable the company to keep pace with a rapidly increasing business.

Hupp's Large Factory Space—During the fiscal year the Hupp Motor Car Company, Detroit, Mich., has added two large units to its factory space. Several other buildings are now in course of construction. Last spring the new plant included four buildings, two stories in height, covering a factory floor space of 5 acres, and with the recent additions the space will be about doubled.

Landman-Griffith's New Building—Work on a new building to be occupied by the Landman-Griffith Motor Company, Toledo, O., will be started immediately and the place will be ready for occupancy December 1. It will cost about $25,000. There will be a 40-foot frontage. Plans for the building are unique, practically all of the two street sides to be made of glass, giving a complete exposure for the large salesroom.

Tiffin Company in Truck Field—The Tiffin Wagon Works at Tiffin, O., is preparing to enter the motor truck field and expect to place a line of these vehicles on the market next spring. Agencies are already being established and arrangements for placing the new machines on the market perfected. Superintendent Shelly stated that extensive preparations are under way for the manufacture of the trucks at the present factory.

Hupp Declares 50 Per Cent. Dividend—Papers have just been filed with the secretary of state, Michigan, increasing the capital stock of the Hupp Motor Car Company, Detroit, Mich., from $500,000 to $750,000, the increase of $250,000 being accomplished by the transfer of that amount from the company's surplus to capital account. The increase of stock forms a 50 per cent. stock dividend, also voted at the stockholders' meeting.

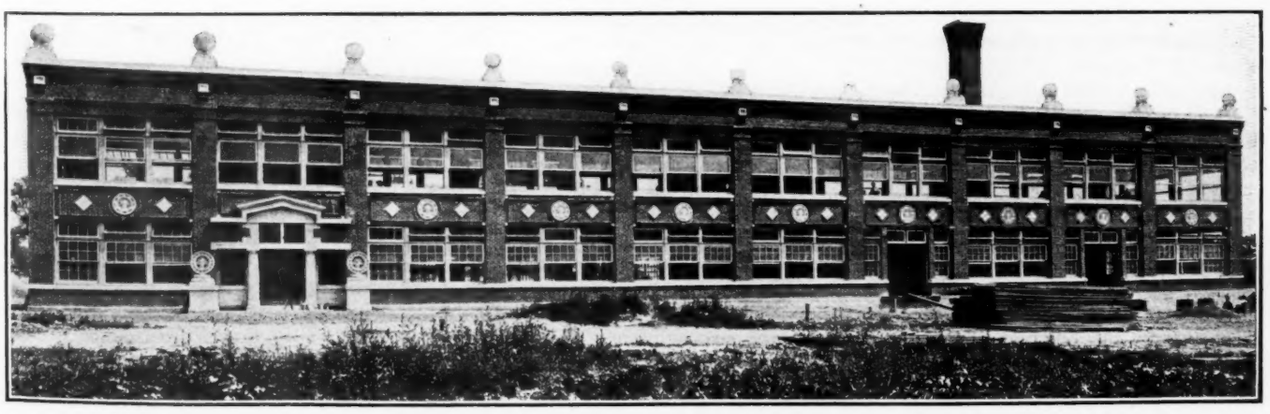
Mitchell Sells to Staver Company—To be better able to accommodate its growing motor car business, the Mitchell-Lewis Motor Company, of Racine, Wis., has sold its entire delivery, spring and mountain wagon business to the Staver Carriage Company, of Chicago, Ill. The department formerly devoted to the production of wagons of this class will be used for additions to the body, trim and paint shops of the automobile works.

Amplex to Enlarge Factory.—If plans now being formed by W. J. Mead, president of the Amplex Motor Car Company, of Mishawaka, Ind., which is the reorganized Simplex Motor Car Company, are carried out the plant will be enlarged to double its present size and all parts of the car will then be made at the Mishawaka factory, including the aluminum bodies. The company will in a short time put on a larger force of workmen.

First Suburban Car Tested—Testing of the first finished car of the Suburban Motor Company, Suburban Village, Mich., has begun. It has just been sent out on a hard trip through Huron county and is to be gone 2 weeks. The new factory of the Suburban Company is being pushed along rapidly. The company is preparing for active building operaand partially completed cars to determine the first design to be developed in the construction.

Premier Plans Plant Additions—The Premier Motor Manufacturing Company, Indianapolis, Ind., is about to let contracts for two large additions to its plant. These will be two-story brick structures, one 40 feet by 148 feet and the other 40 feet by 140 feet. The recent addition of a line of small sixes and the addition some time ago of a commercial car line, together with the increase in other lines, has made it imperative that the company enlarge its plant immediately, or in the near future.

Sterling's Six-Cylinder Engines—Six-cylinder engines for the Sterling Motor Company, which was recently incorporated by W. C. Durant and associates, will be manufactured at the Detroit, Mich., plant of the Chevrolet Motor Company until such time as the Flint factory of the Sterling Company has been completed. W. C. Durant has been elected president of the Sterling Company; Curtis R. Hathaway, of Detroit, is secretary, and William H. Little, of Detroit, general manager.



New factory and office building of the Hess-Bright Manufacturing Company, Philadelphia, Pa., makers of Hess-Bright bearings

Foreign Constructions Designs and Practices

Koecklin Motor Distinct in That It Uses Sleeve Valves Although Operating On the Two-Stroke Cycle

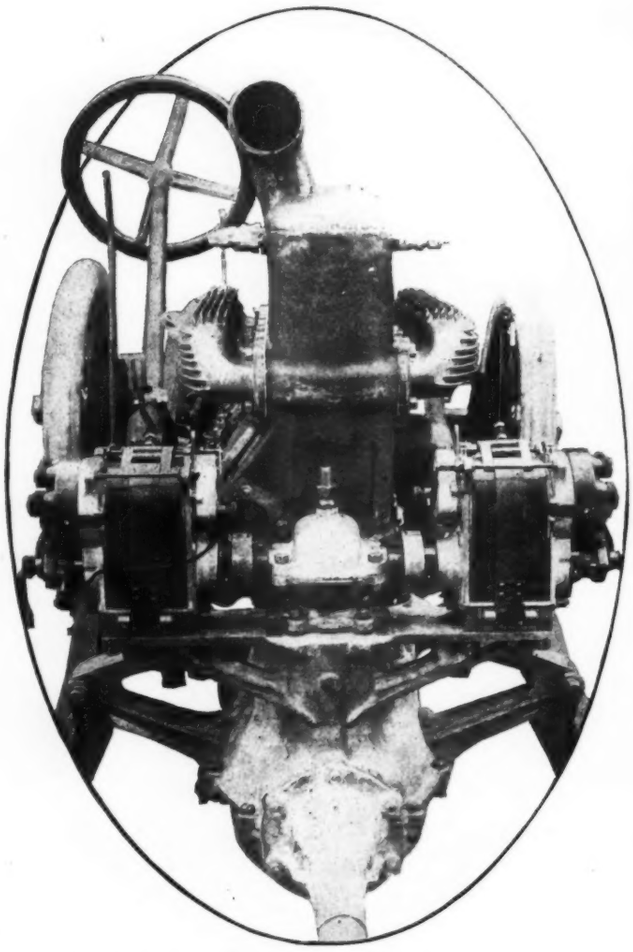


Fig. 1—End view of the Koecklin two-cycle motor

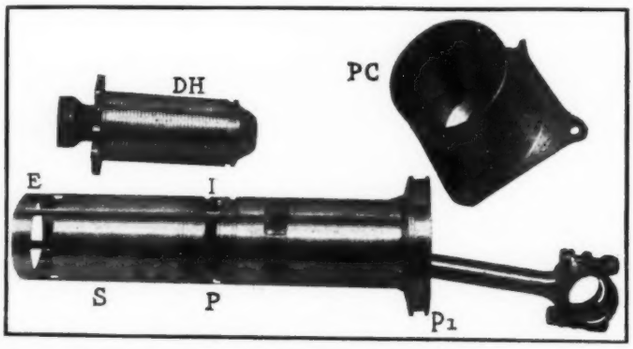


Fig. 2—Koecklin piston with the long integral sleeve carrying the two sets of parts; above is the cylinder head, DH.

THE AUTOMOBILE, through its French correspondent, W. F. Bradley, has obtained, and is able to reproduce this week the first series of photographic illustrations of the positive Koecklin two-cycle motor described in the issue of August 1. Contrary to any two-cycle practice up to the present, the Koecklin uses a sleeve valve to control the admission of gases and also employs a rotary distributer valve between the carbureter and the cylinders. Fig. 1 shows the end view of the motor with its ribbed intake and exhaust manifolds on opposite sides and with its front transverse shaft driving a Bosch magneto at each end. The two flexible motor supports at the forward end are shown as well as the unique form of integral brackets for carrying the magnetos. The position of the rotary distributer on the side of the steering column, or the right side of the car, can be noted.

As described in the August 1 article, the piston has formed integrally with it a long upward continuation sleeve carrying two series of ports, Fig. 2, the sleeve being indicated at S, the intake ports I and the exhaust ports E. The position of the combined piston-sleeve is further shown in Fig. 4 where it is coupled through the connecting-rod to the ball-bearing crankshaft.

It will be noticed that the lower part has a greater diameter than the upper part. This is the part that works in the pump chamber P C, draws in the fresh charge, compresses it and delivers it under pressure to an adjoining cylinder. D H is the removable cylinder head which is shown in a partially removed condition in Fig. 3. The tubular sleeve when at the upper end of its stroke completely surrounds the lower part of the cylinder head around which it works and is cooled owing to the water circulation through the cylinder head.

When the piston is on its lower path of travel, the sleeve is cooled all around its circumference except at the point where the distributer valve is located. The spark-plug, which is placed in the depressed center of the cylinder head, is also amply cooled, thereby recalling one of the advantageous points of design used in the Knight motor. There are also three compression rings used to insure gas-tightness at the point of passage of the sleeve around the lower end of the head. Furthermore, there are five compression rings used to provide a gas-tight joint between the piston-sleeve unit and the cylinder wall.

The crankshaft, C S in Fig. 3, is carried on 5 S. K. F. ball bearings, there being a bearing between the throws, one at the front and one at each side of the distributer pinion at the rear of the shaft. For the purposes of lubrication the shaft is bored throughout, the oil being drawn from the base chamber, through the hollow shaft to the connecting rod ends, and up the tubular connecting rods to the wrist pins. In addition to this, there are, as already mentioned, a couple of oil deliveries to opposite sides of the head of the sleeve and six leads to the rotary distributer. On the forward end of the crankshaft is a bevel pinion driving a transverse shaft with a Bosch high tension magneto at each end. Intake and exhaust taking place entirely around the cylinder, there are a pair of exhaust manifolds, to the left and right of the motor, the left-hand side one passing behind the rear cyl-

inder and connected up to the right-hand one. The intake manifold is cast with the cylinders, the carbureter, a Vapor, being bolted up direct without the use of any piping.

So far as chassis features are concerned the car is on standard lines. The clutch is of the cone type; the gear set provides four speeds and reverse with the lever mounted directly on the box, and being operated by the left hand. The car is shaft driven, with a universal at each end, has a full floating type of live axle, and no differential. The frame, which has its greatest depth opposite the flywheel, is inswept at the front axle and outswept again at the extreme front. It is sharply upswept over the rear axle. The chassis has neither distance nor torsion rods.

Air Suction Aids Root's Muffler

A minimum loss of power in the muffler is said to characterize the design recently evolved by J. D. Roots & Company, 231 Strand, London, W. C. The new and principal feature of this design is the application of the external atmospheric air as the medium which helps to exhaust the dead gases of the motor and to silence them at the same time, this being attained by the use of an apparatus embodying the same traits which give its character to the ejector type of apparatus. The outlets of the muffler, there being a considerable number of them, are so arranged and directed that when they are moved through the atmosphere by the travel of the car, the air represents an all-surrounding jet the suction of which exhausts the interior of the muffler, very much in the manner of a water-jet condenser such as are used in steam engine practice.

While the Roots vacuum muffler, as it is called, is made in several types, the same fundamental points of design are incorporated in all. In every case the muffler consists of a central pipe into which the exhaust coming from the motor passes. This pipe is tapped with several series of holes all along its length and is surrounded with a series of gills which overlap each other and thereby provide constricted passages from the interior of the muffler to the air. The effect of this design is obvious: the waste gases are silenced by being passed through the small holes of the muffler pipe and passages formed by the gills, while the back pressure thereby encountered is compensated for by the suction of the surrounding air jet.—*The Autocar*, August 10.

Mafam Has Automatic Advance

Refinement of detail which tends toward increased efficiency and reliability gives the new German-made Mafam magneto a very favorable appearance. There are a number of original features in this apparatus, foremost among which stands the automatic advance and retarding mechanism operating on the principle of a centrifugal governor. The latter consists of two chains set at an angle of 180 degrees to one another and inclosed in a rotating drum. One end of each spring is attached to the spindle of the magneto armature and the other to the drum; and to each link of the chains is secured a short steel spring which bears against the drum and the pressure of which keeps the magneto in a somewhat retarded position. As the magneto speeds up, the tendency of the chains is to fly away from the spindle, but this tendency is counteracted by the increasing spring pressure, being thus kept in proper bounds.

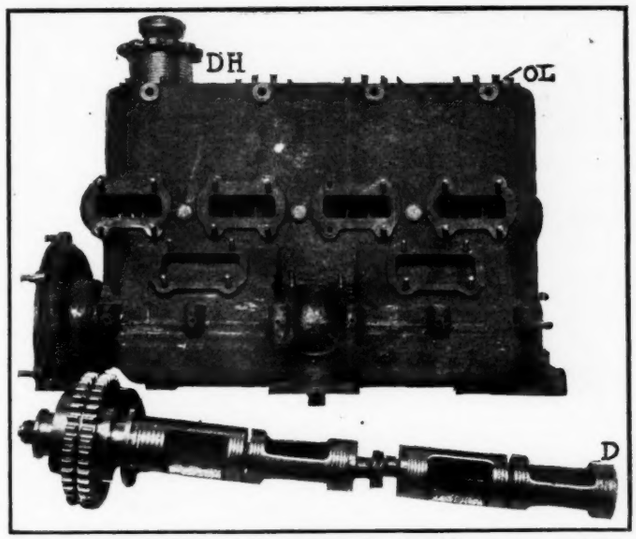


Fig. 3—Four-cylinder block casting on Koecklin motor and the rotary sleeve

Another nicety of construction which, according to the claims of the manufacturer, increases the efficiency of the motor is the method of attaching the pole-pieces to the magnets. The latter are mounted on a base plate, being fixed thereto by a pair of cruciform clamps each having three right-angle grips taking hold of the lower surface of the base-plate and of the end surfaces of the permanent magnets. Only one screw on each side of the magneto is required to fasten the magnets to the base. The pole-pieces are kept in contact with the magnets, however, without the use of screws, obtaining this end by shaping the pole-pieces and their base out of one piece of steel and bracing their top ends by a cross-plate. This construction permits of very high accuracy in grinding the bore of the pole-pieces. This magneto is made by the Mafam Motor Apparate, Frankfurt-on-the-Main.—*The Autocar*, August 24.

GERMANY has produced another pneumatic speedometer, manufactured by Peerboom & Schuermann, Duesseldorf, Rheinland. It consists of a light metal drum rotated on a flexible shaft and on whose inner end there are a number of strips of metal arranged radially. On these strips fan blades are mounted and when the flexible shaft is rotated the body of air in the drum is rotated also and moves the fan with it.—*Auto Motor Journal* Sept. 21.

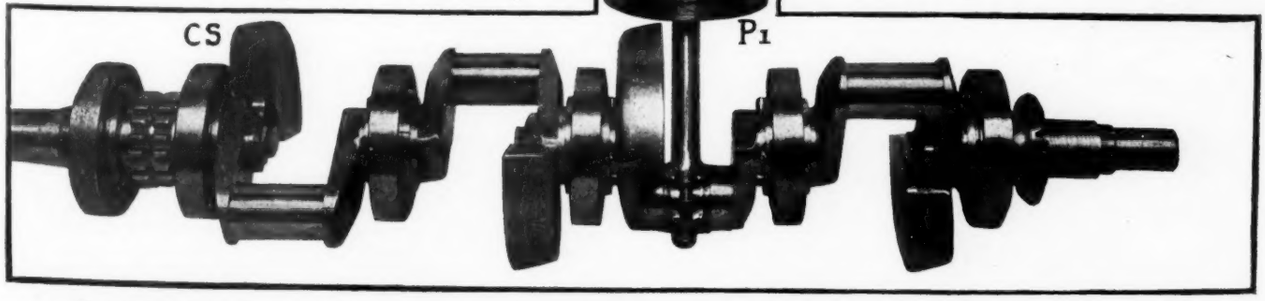


Fig. 4—Six-bearing crankshaft used on the Koecklin two-cycle motor. Note counter-weights on cranks for balancing

Ansonia Positive Lock Windshield; Rossman Casing Repair Machine; Standard Company's Q. D. and Demountable Rims; Elevating the Ford Timer; Latest Trade Literature

WHAT is claimed to be the last word in windshields is the Positive Lock type manufactured by the Ansonia Manufacturing Company, Ansonia, Conn. This company manufactures one- and two-pane shields, in which every pane may be adjusted to a variety of positions and is positively held in place after the position has been selected. This great adaptability is obtained by the use of four ball-lock joints, one pair of which is used in connecting the two panes in combination with two short vertical supports and the other pair to provide the fulcrum around which the upper pane may be turned and, if necessary, rotated.

The units of which the two-pane shields are made are the brass frame and the two plate-glass panes. The frame is composed of two rectangles embracing the panes and a pair of long stay rods by which the shield is fastened to the floorboard. The hinges or joints above referred to which constitute the principal parts of the shield are shown in detail in the sectional view, Fig. 4. As this illustration shows, each joint consists principally of two cup-shaped members, C, C1 which contain steel disks S, S1 of which S is formed with semi-spherical depressions, into which suitable projections of S1 fit. The part C is fastened to a clamp C2 bearing against the tube which is part of the shield pane frame. C and C1 are provided with central holes through which the bolt B passes, the latter screwing into a thread tapped in the tube T. The end of the bolt carries a head H, the inner side of which is shaped with a cylindrical projection holding the spring S2 in alignment with the bolt B it encircles. The part C1 is fastened to the short vertical support V and it will be seen that, if the pane held in the frame of which tube T is a part is turned, the depressions and projections of C and C1 are alternately brought into and out of engagement, providing a series of positions which differ from one another by angles of 45 degrees. The head H is held in place on the bolt by a nut N locked by a cotter pin, whereby the outward movement of the head which the spring pressure tends to bring about is checked. A slight internal movement of the head on the bolt is allowed for by leaving one turn or so open toward the tube. By this expedient the head H may be screwed farther in on the bolt, thereby compressing the spring and positively locking the disks S and S1, as well as the cups C and C1 in their relative position. The spring pressure makes the engagement of the disks positive as it always causes the projections and depressions to grip each other. It is therefore necessary in order to change the position of the pane held by the tube T to first screw head H as far outward as possible, then bring the pane to the desired position and fasten it therein by closing the head upon the bolt. The tightness of the engagement of the disks is determined by the spring pressure which is adjustable.

Practically the same joint is used to attach the vertical support V to the upper corner of the lower pane frame. This joint permits the change of the angle of the support V to the upright side member of the lower pane's frame and for this purpose is made with two pieces of tubing each threaded for two bolts. Figs. 4 to 7 show the attachment of the joint to this side member and to the support V. The latter is threaded with two holes for the bolts passed through a piece of tubing integral with the joint, the side member of the frame is threaded with four holes above each other, but at varying distances. If the uppermost (first) and the third hole are used in securing the lower tubing attached to the joint the lower windshield pane is held in a vertical position, as the pane and the length of the stay rods determine two sides of a triangle, the third side being the distance from the lower edge of the lower pane to the line connecting the footboard ends of the stay rods. If the bolts are passed through the second and fourth holes of the side member and the length of the stay rods—which is adjustable by a joint connecting its two telescoping parts—is decreased, the lower pane may be inclined toward the driver.

The shield comes in widths of 38, 41 and 44 inches, the upper pane being 12 inches high and the lower one 12 or 13 inches. The standard finish is polished brass, but the company also furnishes nickel, black or other popular kinds of finish.

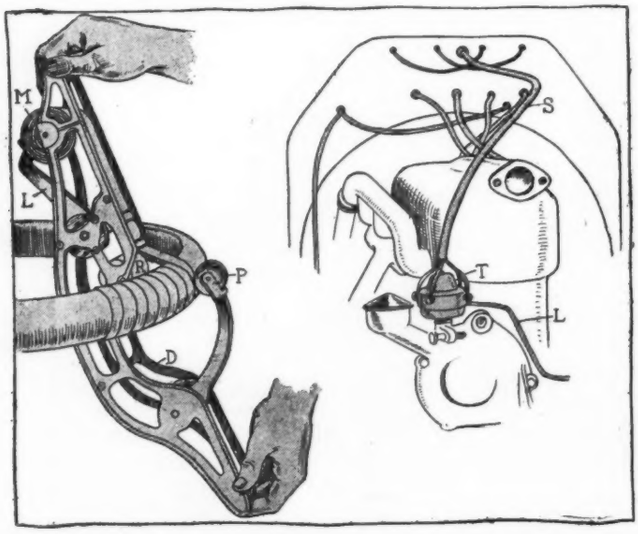


Fig. 1—Rossman tire-wrapping machine. Fig. 2—Device for elevating the timer of Ford automobiles

Rossman Tire Bandage Wrapper

Wrapping a tire casing is such a frequent and at the same time not too easy operation, that Roy G. Rossman, 707 East Pike street, Seattle, Wash., considered it a worthy end to design a machine for the application of bandage to a casing undergoing repairs and has applied for a patent of the same. The device, Fig. 1, consists of a frame which is 30 inches long and weighs about 16 pounds, being so shaped as to provide at once a mechanism for storing the wrapping material, wrapping it around the tire and tightening it thereon. The material is carried on a spool as at M and is conducted over two rollers so as to be kept straight. Tight winding of the tire is obtained by the use of the roller R against which one side of the tire bears, the other being pressed by the pulley P. A lever L whose end is shaped with a plate holds the material taut on the spool, preventing any slack.

Manifold Line of Stanweld Rims

The Standard Welding Company, Cleveland, O., has brought out a line of rims, both of the quick-detachable and demountable types. While the demountable types are specially rich in improvements over past rim practice, the Q. D. designs are by no means poor in new ideas. The following notes referring to the new products give the most important points characterizing the rims of the Standard Company. There are three types of Q. D.'s and four types of demountables, known by the name Stanweld. Types 50, 51 and 52 are of the Q. D. design, the first being a universal type adapted for straight side of clincher tires. It has two side rings, one of which is con-

tinuous and the other split, both being removable. Type 51 is designed for straight-side tires exclusively, while type 52 is a clincher rim. If, however, the detachable side ring on the last type is reversed and a rim filler is used, it may be adapted for straight-side tires. The most original detail of the construction of these rims is the detaching mechanism, Fig. 3, shown in the two lower sketches. It consists of a latch attached to the continuous ring and adapted to engage a projection on the lower side of the split ring, which is inserted in the continuous ring through a groove in the latter. If this part is engaged by the latch a projection on the free end of the latter is caught in a groove on the inner side of the continuous ring. When this is the case the split ends of the ring contact with one another, but the projection of this ring may be released and the engagement broken by prying the latch off the continuous rim, using a screwdriver for disengaging the latch projection from the hole containing it when the rim is intact for operation.

The demountable types use the same simple and efficient detaching feature. Four types of parts, the felloe band, rim base, adjusting ring and clamping members characterize the demountable types. The felloe band F, held in place by the ends of the clamping bolts B, supports the rim base B1, which is held under tension by the pressure exerted by the clamping bolts on the adjusting ring A. E is the continuous ring supporting the tire on one side, while the detachable ring D supports the other side. The adjusting ring is split transversely and fits the flange on the inside of the rim base so that the tendency, due to the weight of the car, is to force the rim toward the retaining flange which resists it on the strength of its continuous bearing against the rear of the rim base. The bolts which positively hold the adjusting ring in position carry the clamps C bearing against it. The clamp which bears upon the adjusting ring and the washer has a universal movement on the clamp nut.

Ford Timer Elevator Gear

Ford owners will be interested in the new device, Fig. 2, which serves to elevate the timer on Ford cars, thereby bringing it out of the range of water, if the cars are run through streams, etc. It is also put in a place by itself where the chance for short-circuiting is reduced. Fig. 2 shows the timer T in position close to the filler hole of the crankcase. It is driven from the timing gear by a hard-steel spiral gear with 1-2-inch face and 15-8 inches diameter. Attention is called to the new position of the cable suspension S, which takes this part out of the range of the fan-belt adjustment screw and makes both more accessible.

New Trade Literature

The Duryea System of Automobile Construction is the title of a 29-page pamphlet issued by the Duryea Motor Company under the authorship of Charles E. Duryea. The advantages of the Duryea car are dwelt upon at length by Mr. Duryea, who is one of the pioneers of the industry. Of special interest are his comparisons of the two and four-cycle type of motor, air cooled vs. water cooling, the distribution of weight and the control system.

The Halladay News for September, published by the Streator Motor Car Company, has arrived. It is a lively little pamphlet of eight pages containing the latest news of the Halladay selling organization and factory. In it we learn of the addition of the electric self-starter on the Halladay cars after the 15th of September, that the Streator Motor Car Company has enlarged its plant by adding that of the Streator Metal Stamping Company which adjoined it and the intention of the company to establish at least two more service stations.

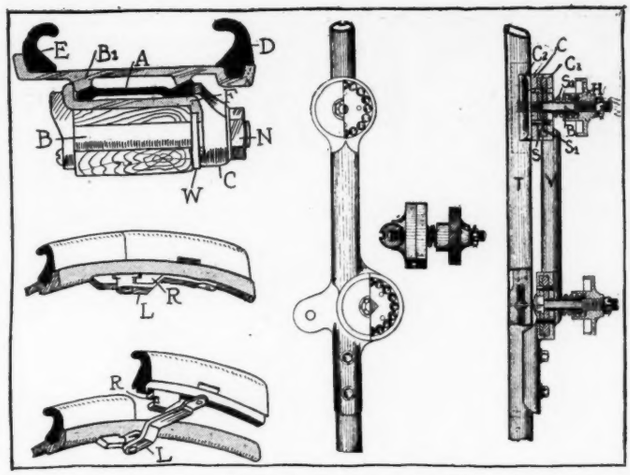


Fig. 3—Standard Q. D. and Stanweld demountable rims. Fig. 4—Section of Ansonia windshield hinge

How to Put Truffault-Hartford Shock-Absorbers on Your Car, an eight-page brochure issued by the Hartford Suspension Company, tells the user of these absorbers how to keep their efficiency at par by giving them the proper care and adjustment. This pamphlet is clearly written and well illustrated and should be of value to the automobilist using the Truffault-Hartford shock-absorber.

The Bosch News for September contains a short article on salesmanship and the fallacy of the knocking policy. It is largely a motor boat number devoted to the Harmsworth trophy races in which England took the cup and to the transatlantic voyage of the little motorboat Detroit. A description of the newer types of magneto is also given in this organ of the Bosch Magneto Company.

September is the birthday month of the B. F. Goodrich Company and therefore this month's issue of *The Goodrich* is called the birthday number. It is quite a comprehensive affair of 31 pages and is exceedingly well gotten up, containing both news and a mass of valuable data of interest to the car owner. The humorous side of the motoring situation has not been overlooked and a very interesting number is the result.

Something new in the way of instruction books is that issued by the Overland Company, which has gone a step further than usual in the preparation of the booklet, which is often seized as the drowning man seizes the proverbial straw by the perplexed motorist. Too often in the past the instruction book has proved a straw indeed containing a number of bootless generalities which, as the automobilist declared, "got him nowhere." The owner's record and identification car contained therein is also of special interest.

One of the cleverest trade-literature stunts that has been laid upon our desk is a small pamphlet in the shape of a radiator, being the menu of the "Car with a Conscience" dinner, recently given by the Oakland Motor Car Company at Hotel Ponchartrain, Detroit, Mich.

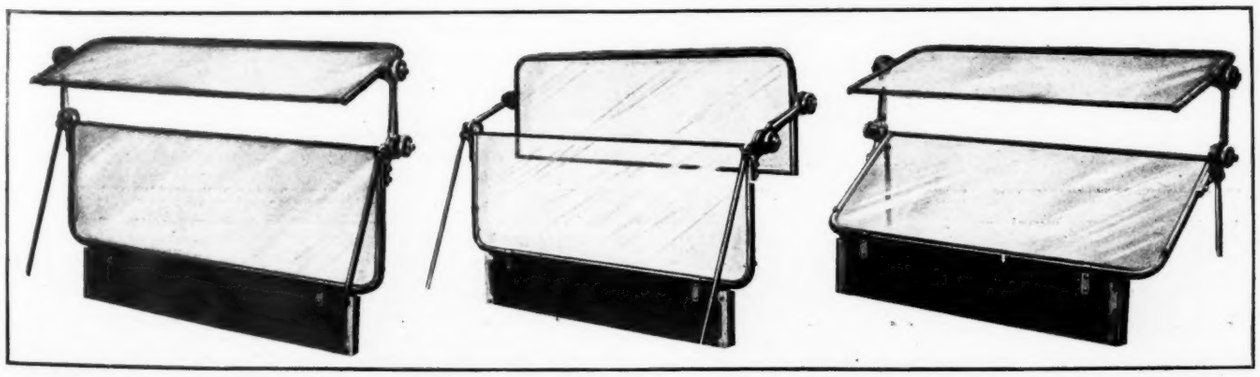


Fig. 5—Ansonia windshield with lower pane in vertical and upper in clear-vision position. Fig. 6—Upper pane in car-ventilating position. Fig. 7—Zig-zag clear-vision position

Patents Gone to Issue

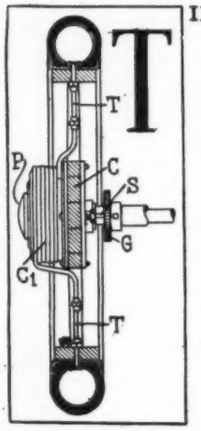


Fig. 1—Craig tire cooler

IRE Cooling Device—In which the rim is cooled by a water current circulated by a pump through a radiator coil.

In Fig. 1, the subject matter of this patent, a tire-cooling mechanism is shown. It consists in principle of a coiled radiator pipe surrounding a wheel hub and having passages which are in contact with the rim portion of a wheel. The Coil C1 is mounted upon the casing C which is arranged around the wheel hub in the manner of a false hub. In this casing a pump is located eccentrically, the shaft of which S is driven by gearing G. The water is circulated through the coil, to the rim and back, through a system of radial tubes T. A removable plate P closes the side of the casing and affords access to the interior of the same as well as the end of the axle.

No. 1,038,092—to Andrew B. Craig, Tarkio, Mo. Granted September 10, 1912; filed January 31, 1912.

Automobile Engine Carbureter—In which additional fuel jets are brought into action when the opening of the throttle is increased by the driver.

The principal feature of the carbureter described in this patent and illustrated in Fig. 2 is the construction and location of the auxiliary fuel jets K. Reference to the figure shows that all fuel, after passing through the float chamber F flows through the passage P controlled by the needle valve N which is operated like the needle valve of the ordinary carbureter. The fuel then flows past the needle, through the conduit Q and up to the main jet J where it is sprayed. The throttle T extends across the mixing chamber M, leaving open a small portion of the latter's cross-section for the minimum air supply. As the throttle is opened to a greater extent air is drawn through the lower space M1 of the mixing chamber and the jets K are brought into action, first the one nearest to the jet J, then the next, and so on. The level in the horizontal passage H and the vertical one V is determined by the fuel level in F, as the passage P1 has the effect of insuring atmospheric pressure within the passage V.

No. 1,038,040—to Arthur J. Weiss, West Orange, N. J., assignor to Maxi Company, New York City. Granted September 10, 1912; filed January 25, 1912.

Automobile Turntable—Which is rotated by small wheels bearing on a circular track and driven by friction wheels which bear upon the floor of the establishment wherein the turntable is installed.

This patent refers to a turntable, Fig. 3, which comprises a rotary table T, a track T1 and wheels W running upon the latter and journaled to the table. Friction wheels F, which are journaled on the table, operate the wheels W, means being provided for preventing one of the friction wheels from rotating in one direction. A wheel depression D in the table is designed to hold the driving wheel of an automobile in position.

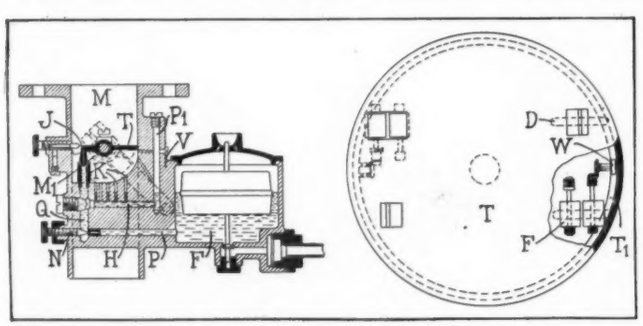


Fig. 2—Weiss multiple-jet carbureter. Fig. 3—Dellamore automobile turntable

No. 1,038,309—to Albert Dellamore, Los Angeles, Cal. Granted September 10, 1912; filed April 16, 1912.

Shock-Absorber—In which road shocks are taken up by a liquid in which a piston moves.

The subject matter of this patent, a shock-absorber, Fig. 6, consists of a cylinder C which is partly filled with a fluid in which a piston rod carrying a head is positioned and adapted to move. In the cylinder there is also a floating cage composed of a series of solid spindles, each of which passes through a passageway in the piston head and being so formed that when the piston moves through the cage the passageways in its head are constricted.

No. 1,037,052—to Frank Maxwell, New Rochelle, N. Y. Granted August 27, 1912; filed November 2, 1911.

Pipe Wrench—In which a spring holds the two jaws in positive engagement with the pipe.

This patent relates to a pipe wrench, Fig. 4, which consists of a fixed jaw F and its shank to which a handle H is hinged by a rule-joint connection. The shank has the form of a segment one side of which is faced with ratchet teeth, being engaged by a pawl P which is pressed against them by a spring S.

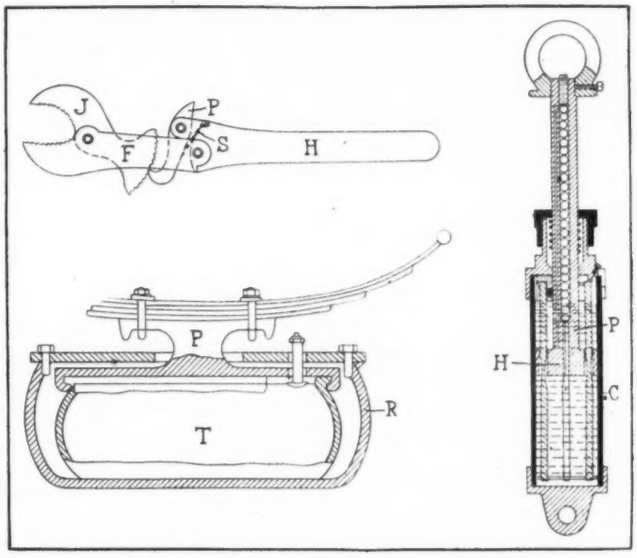


Fig. 4—Bessolo wrench. Fig. 5—Stovel suspension. Fig. 6—Maxwell shock-absorber

No. 1,037,109—to William Louis Bessolo, San Diego, Cal. Granted August 27, 1912; filed May 14, 1912.

Pneumatic Automobile Suspension—In which the springs supporting the body rest on inflatable tubes carried in a hollow axle.

The patent refers to a suspension method, Fig. 5, comcomprising an automobile axle in which a receptacle R is formed. The latter contains an inflatable tube T held in an outer casing which is provided with an opening through which the tube is inserted in the receptacle. A plunger P is mounted in the receptacle so that it reciprocates therein and fits into the opening of the receptacle. The spring which supports the body of the automobile is carried by the plunger.

No. 1,037,360—to Charles J. Stovel, San Francisco, Cal. Granted September 3, 1912; filed January 22, 1912.